HEADACHES

How Caused And How Cured

Logan Macfadden

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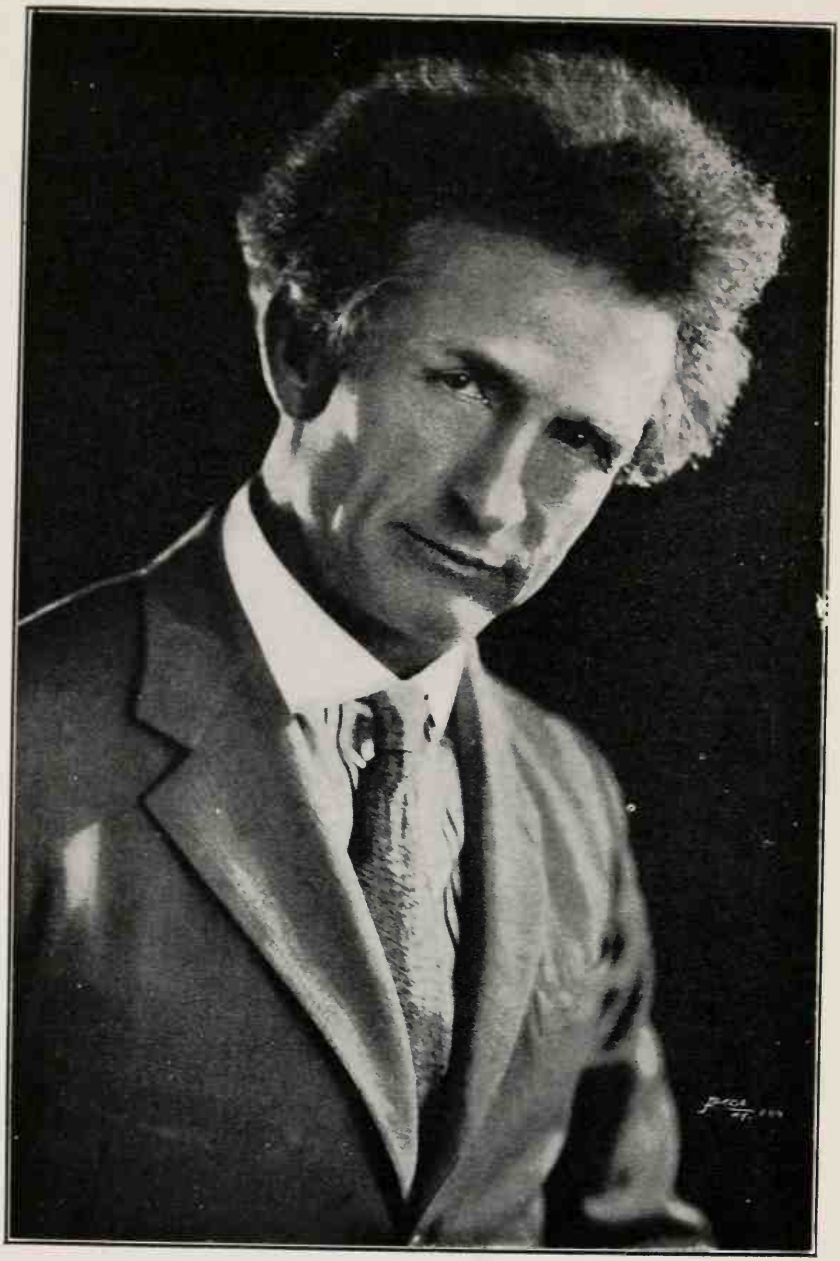

Portrait of the Author

HEADACHES

How Caused
And How Cured

BY

BERNARR MACFADDEN

AUTHOR OF MACFADDEN'S ENCYCLOPEDIA OF PHYSICAL CULTURE, EATING FOR HEALTH AND STRENGTH, STRENGTHENING THE EYES, HAIR CULTURE, CONSTIPATION, TOOTH TROUBLES, MIRACLE OF MILK, PHYSICAL CULTURE COOK BOOK, AND OTHER WORKS ON HEALTH AND SEX

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PREFACE

PEOPLE who are so fortunate as never to have headache may consider this symptom quite uncommon and insignificant. Doctors of course know otherwise. Those not so affected, therefore, will, in all probability, see no occasion for a book of this kind. But, next to colds, there is perhaps no other condition that is more common or that affects its victims more frequently than headache.

Headache is not a disease. It is merely an indication of some abnormal condition in the body, ordinarily elsewhere than in the head. Of itself, headache is usually not detrimental to health—though the cause may be extremely so—but the comparatively harmless headache may cause more suffering and deprive a sufferer of more pleasure than the serious causative condition itself.

A headache, perhaps, prevents more work than any other minor ailment, since it attacks the very core and center of one's being. We may have a pain in the arm or leg or in the back or elsewhere and, by mental concentra-

tion upon work or pleasure or by physical activity that does not directly aggravate the pain, we may be able to put that pain in the background; if for instance we have a pain in the abdomen we may be able to control it in like manner or by forcing a fist against the abdomen. But not so with a headache: neither effort of will nor mental or physical activity will usually bring relief. On the contrary, it may aggravate the symptom; for this pain attacks the very citadel of life and any concentration upon it merely intensifies the disturbance and we seem to have no power to combat it.

It might be well to explain the significance of pain—anywhere in the body. Pain is one of the many friends in disguise provided by Nature for our guidance. It is not an enemy. Pain is a red light directing to some disorder that may lead eventually to more grave conditions and symptoms, and should not be ignored or subdued, or checked or deadened by drugs or sedatives or "pain killers." Instead, the cause should be searched for, and if found, removed; when this is done the pain will have no excuse for existence and will vanish into the nowhere.

Thus, while headache is uncomfortable and tends to incite anger and other unprofitable emotions and deprive us of work and pleasure, this ailment is but a friendly danger signal indicating defective functioning somewhere in the body. If this signal is heeded at its first appearance it probably need never increase to the degree where it consumes all of one's attention though, as will be described in these pages, there are some rather rare causes of headaches that are practically incurable. It is the aim of the author to define the many causes of headache and the symptoms usually associated with it, and to suggest a course of treatment that will help to correct the causes and remove the symptoms.

It is impossible to make any classification of headaches that is fully satisfactory in every respect. Each writer on the subject has chosen his own way for grouping them, which shows that there is no uniformity of opinion in regard to them.

Practically all headaches—and I do not fear contradiction when I say *all* headaches—are symptomatic. Even though there may be no general disease nor any disease of the vital organs, headache is a symptom of some de-

rangement of the nerves responsible for this particular pain, and that derangement is usually a condition not primarily of the nerves.

There is a distinct difference between most functional and most organic headaches, but it is not always possible to determine with which type one is dealing, at least not until after other marked symptoms develop. But it seems to me that a classification of headaches into functional and organic is the most rational, and I have adopted it. I realize that in many cases, this is not satisfactory, for the headaches themselves, their type, location, severity, etc., may be such as to give no guide as to which class they belong. Besides, some that are classed as functional or organic may be due, in fact, to conditions which cannot be determined during life as one or the other.

However, any classification that may be justly made will be criticized by some. The main object in grouping headaches is to secure some semblance of order to the subject and avoid mixing them up without rhyme or reason; and some reason will easily be seen for the grouping I have given. I have discussed functional headaches first, because these are the ones which my readers may be

able to cure themselves by correcting the underlying cause or causes. Organic headaches are those due to such organic or structural changes that in most cases comparatively little can be done by the patient himself—and, for that matter, little more can be done in most instances by any physician; therefore, these are given last, and are included merely because they do exist. Some attempt will be made to describe briefly their characteristics in order so that a victim may know whether or not he is safe in attempting his own treatment. Such knowledge will also aid a victim of a functional headache in knowing that he does not have a more serious kind of headache. And that is worth while to know.

Bernarr Macfadden

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HEADACHES

CHAPTER I

Functional Headaches—Toxic Causes

FUNCTIONAL headaches are those which are the result of functional derangement or of some organic disturbance elsewhere in the body than in the head, and are not due to an organic or structural change in the head or brain itself. Most of the headaches belong to this class. One of the means whereby they may be distinguished is their response to treatment for the underlying general or distant organic abnormality. This class constitutes the major portion of the book, by a considerable margin, for two reasons: first, there are a great many more causes of functional headaches than chronic and they are by far the more common; and second, the organic headaches are practically beyond self-

help and need not be given detailed consideration in a book of this nature.

By the term toxic headaches is meant headaches that result from an abnormal chemical condition of the blood, lymph and tissues which causes an irritation of the nerves responsible for the pain of headache. As will be seen in the pages that follow, the toxins may arise from a great variety of causes. Without doubt the toxins themselves vary greatly in character and also in their ability to cause headache; and of course the effects of any toxin depend to a considerable degree upon the susceptibility of the individual.

The various types of toxic headaches and the various causes of these headaches are numerous. They range from such trivial causes as to be almost ignored and have practically no other appreciable symptom than headache, up to serious disorders that continually bring themselves before the patient and that have so many symptoms in addition to the headache that the headache may be practically ignored, or at least it remains in the background.

AUTOTOXIC HEADACHES DUE TO DISORDERS OF THE DIGESTIVE TRACT

Constipation. One of the most frequent of all causes of headache is constipation. One of the most important functions of the intestines is to carry to the natural exit the undigested and indigestible portions of food consumed. When one eats regularly three meals a day there should be one or two good bowel movements daily, and if one eats large meals there should be more movements or each should consist of copious quantities of waste. Ordinarily the waste passed from the body through the bowels should be about six to eight ounces of solid material—and this should be regular if one is in perfect health. Many people have regular evacuations but the amounts discharged are deficient in proportion to the amount of food consumed. These people are constipated, regardless of the number of movements or quantities evacuated during twenty-four hours. When for any reason or when in any degree the amount of discharged material fails to correspond to the amount of food taken into the body, some other dis-

turbance is almost invariably certain to develop within the body.

The waste material from simple, natural foods properly combined may produce little trouble when retained, but when foods ferment and putrify or are taken in excess of requirements a condition of intestinal toxemia develops. The fluids and gases so produced directly irritate the intestinal lining, and are absorbed the same as wholesome food substances are absorbed—gases as well as the fluids. Upon absorption into the blood these elements penetrate every tissue. They may cause little trouble when one's vitality is high or when one is physically active or is eliminating properly through the skin and kidneys; but in many instances even these forms of elimination are inadequate to prevent disturbances. And when one's vitality is low then symptoms are certain to manifest themselves.

As constipation is a frequent cause of headache, so also is headache a frequent symptom of constipation-toxemia, as might be expected when the irritant toxins get into the blood and other tissues. But people vary greatly as to the amount of toxemia they can endure without the development of headache or other

symptoms. And the headaches of people vary as much—in character, in intensity, and in effect. The usual constipation headache is a dull ache at the back of the head, sometimes also associated with a similar ache at the nape of the neck. The hand may be frequently placed on these regions, and the head may be drawn backward by rather vigorous contraction of the neck muscles. This may give temporary relief for the neck ache, but it has little or no effect upon the ache within the skull bowl.

Sometimes the ache is in the temples, usually a more acute or sharper ache—more like a pain, in fact. Not infrequently the entire head is affected with a diffused ache that defies description. Rarely will the pain be at the top of the head, but when so occurring it gives a sensation as if the top of the head were being lifted upward.

Usually a headache of constipation is not affected by body movements, but in certain sensitive people it may become a throbbing one. The throbbing may be gentle but disconcerting, and again it may reach a degree of intensity that makes the sufferer decidedly miserable. Sometimes this severe degree of

ache or pain may be partly due to an associated condition, and not entirely to the toxins generated within the bowels.

If there is a condition of weak eyes constipation may produce an aggravation of an "eyestrain headache." The eyes may become weary, and a dull ache or a rather acute pain may develop within or just back of them, or the pain may be in the temples. This headache is not likely to develop unless constipation and eyestrain both exist.

In some cases the general toxemia produces an insomnia, but in others the insomnia seems to be produced by the headache. In many other cases there are drowsiness and sleepiness. But if the constipation is not corrected, at least temporarily, the headache continues on awaking, or it soon returns, especially after one is up and around for a short time.

People react very differently to the temporary correction of the bowel stasis. Some few will retain the headache for hours after the bowels have been cleared or partially cleared, and a still fewer number will require a day or so or a night of sleep for the headache to disappear entirely. But usually the typical constipation-toxemia headache will be relieved

with remarkable promptness as soon as the bowels are well cleared. Undoubtedly this is frequently largely psychological, especially in neurotics who have the "constipation mania."

I believe, though I have never heard of others holding the same view, that the early relief in many of these cases is not so much the elimination of waste accumulations (though that undoubtedly plays an important part in the permanence of the relief) as from the passage of the fecal mass through the sphincters of the rectum, which are sometimes greatly dilated. We do know that dilation of the sphincters by manual or mechanical means creates a marked stimulation of the sympathetic nervous system, and the fecal mass serves as an effective dilator. Of course this explanation will not apply when the waste is passed in watery solution or in such soft masses as to have no dilating or stretching effect upon the sphincters; but such a condition is not usually present in a case of well-marked constipation, though a freshet of foul watery substance may follow the passage of a solid plug, especially in case drug laxatives have been taken immediately before.

Dyspepsia *(Simple Gastritis).* Dyspepsia,

in the true sense, is almost invariably a neurotic condition. This is especially true of nervous dyspepsia, but I believe it is also true of the acid dyspepsia, atonic dyspepsia, and catarrhal dyspepsia, but less so of the last named. People with dyspepsia (which, by the way, is a term loosely applied by the layman and a good many physicians for all types of minor digestive disturbances) usually have more or less marked temperamental infirmities, and they usually have some other nervous derangement also.

There may or may not be associated with the dyspepsia a prolapsus of abdominal organs. There is a certain degree of instability of the digestive system, particularly in the nerve control of it, either inherited or acquired. When there are worries of any kind, or a general lowering of vitality develops, the first showing may be a disruption of the digestion—a dyspepsia. Among those who have such disorders are the people who, from choice or necessity, have given up an active life for one of ease or confinement. They eat as before, and as slight digestive troubles develop they concentrate their attention upon themselves; and "before they know it" they

have a well marked case of dyspepsia.

Not all nervous or neurotic people have headaches, but many do, largely because they are of the type where the nervous system is somewhat on the oblique, being susceptible to many adverse stimuli. The digestive disorder may be so slight that many others would give it little or no thought, but to these folks it takes on rather huge proportions, especially if they have been comparatively free from physical disorders in the past. The headache, but one of several other disturbances, is at first merely enough to make them restless and irritable; but as their dyspeptic disturbances increase, under their careful observation and mental nourishment or stimulation of them, the headache likewise becomes more noticeable until in time it becomes one of the predominating symptoms. If such people would become physically active or interested in a mental activity or hobby the dyspepsia usually would vanish and the headache with it—probably with remarkable suddenness or within a surprisingly short time.

Gastric Indigestion. So far as the digestive symptoms are concerned there is little difference between gastric indigestion and

dyspepsia, but the former is not a neurosis; it is usually traceable directly to dietetic errors —to the consumption of more foods than the stomach can successfully digest, or of articles unsuitable for digestion, or of chemically incompatible food combinations; also, the consumption of foods in the summer that have already begun to decompose. These foods may directly irritate the stomach lining, or they may remain in the stomach and undergo decomposition, in either case bringing on some degree of acute indigestion. Alcoholic drinks are very prone to cause this disturbance, their effect and the amount required to cause trouble varying greatly in different individuals. Children are very liable to acute digestive disorders when the diet is improper in quantity or quality, and they are also likely to develop acute bowel trouble at the same time, with the diarrhea.

The symptoms are those of dyspepsia—in a mild case a slight distress in the abdomen, nausea and possibly vomiting, acid belchings, depression and headache. In severe cases there may be three or four degrees of fever, or probably convulsions in children. The explanation of the headache is not always easy;

it may be reflexly through the sympathetic nervous system from the irritated stomach lining, or it may be due to the toxemia, and it may be aggravated by fear or worry. These people drink very little water, and the headache may be partly due to the deficiency of this toxin-diluting medium. Ejection of the stomach contents gives relief from the headache and other symptoms—which is also true in the case of nervous dyspeptic headaches.

Dilation of the Stomach; Atony of the Stomach. These conditions are not the same, though either one may result from the other. A frequently or constantly dilated stomach becomes atonic in time, and an atonic one is very likely to become dilated. Frequent stretching obliterates some of the blood vessels in the stomach wall and reduces the strength of others, which results in lessened nourishment to the stomach walls, with loss of tone. Dilation may also result from partial closing of the stomach outlet as a result of muscular spasms, stricture from ulcer scars, tumors in the stomach or nearby, etc.

An atonic stomach may also result from a general run-down condition, inherited susceptibility, or follow acute infectious diseases

or chronic diseases leading to malnutrition, intense emotional excitement, or injury. Sometimes in these conditions there is more of an exhausted sensation than a typical ache in the head. At other times it is very similar to an anemic headache, and in fact this latter condition may result from malnutrition. There is apt to be some degree of headache until the causative condition is corrected.

Prolapsus of Stomach or Abdominal Organs. Through congenital or acquired weakness of supporting ligaments or abdominal muscles one or more of the abdominal organs may be considerably prolapsed. Among acquired causes may be tight corsets or belts, frequent or repeated pregnancies, stomach dilation, abdominal tumors, obesity, and malnutrition. The digestion is delayed in these cases, and there is likely to be a dilation of the stomach or colon; a condition similar in nature is sagging of the greater curvature of the stomach while the two ends of the organ remain in place. In these conditions the food remains in the stomach an unnaturally long time and undergoes harmful chemical changes leading to toxic absorption or irritation of the membrane lining of the stomach. However,

the dragging of the prolapsed organs directly upon the nerves leads to general nerve weakness through the constant irritation and dissipation of energies. There may be, then, the headache of toxemia, or that of neurasthenia, or the combination of the two, or it may be reflex. Usually the headache is not intense and has no characteristic features, unless it is due to the neurasthenic element.

Intestinal Indigestion. It is rare to find this condition without gastric indigestion also, though the former may be the more pronounced. It may be due to wrong eating habits, displacement of the intestines, liver or pancreatic disturbance, or to tumor pressure. When the upper intestines are involved the frequent, thin and offensive stools contain undigested portions of food; there are rumbling noises and usually colicky pains in the abdomen, the nutrition becomes impaired, and anemia developes. Here, then, we have several causes for the headache.

Flatulence. One may have gas in either the stomach or intestines, but it is not "flatulence" unless it causes more or less distention of the abdominal walls, with the feeling of bloating. Various acids and gases are formed

by wrong food combinations or excess of foods, especially starches and sugars, and these balloon out the digestive organs and the abdominal walls. They may be passed out, or they may be retained and create distress or even serious symptoms, as heart disturbances, fainting, sense of suffocation, anginal attacks, etc. The gas is evidence of fermentation, always associated with toxicity. The absorbed toxins cause headache, from direct irritation or from depriving the blood of sufficient oxygen. The distension of the stomach and intestines and the irritation of the nerves reflexly cause a headache through excitation of the vagus nerve or the sympathetic nerve plexus of the abdomen.

Thus it will be seen that there are several abnormal conditions of the digestive organs that may be associated with headache, most of them causing this symptom through toxemia, but some indirectly through irritation of the sympathetics; others through oxygen-starvation; still others through the resulting anemia. Also, some conditions, such as flatulence, cause headache through cardiac disturbance. But the main cause of the headaches in these conditions is the toxemia, auto-

toxemia or autointoxication, whichever one wishes to call the toxic condition.

Autotoxic Headaches of Disorders of the Kidneys

The function of the kidneys is to eliminate, in solution, certain products of metabolism, tissue waste and waste of unutilized foods. On an average the amount of urine excreted in twenty-four hours is about three pints, of which about two ounces are of solids, with urea forming about one-half of this amount. Urea is the chief end-product of nitrogenous metabolism, and is found normally in the blood in small amounts. Under certain chemical conditions it crystallizes into needles or prisms, and it is partially due to this crystallization that certain symptoms, especially pains, result when kidney action is defective. Among the several constituents of urine is uric acid, a midway product of metabolism—a condition of nitrogenous changes prior to the stage of urea formation. It seems to be the most prominent causative factor in symptoms of gout. There are numerous other constituents of the urine, as xanthin, hypoxanthin, creatin, creatinin, nucleinic acids, allantoin, alloxuric

acid, diamins, amido acids, and ammonia—all formed in some stage of metabolism.

Chronic Nephritis. There are different conditions of the kidneys in chronic nephritis. They have different symptoms, and produce different causes for the symptoms. In one form, in which the working cells of the kidneys are destroyed, there is a considerable reduction of the urinary secretion, the usual amount being about one-third of normal or less; there is also a reduction of the solids eliminated or, in other words, "a retention of urea." A headache may be present in this form of kidney disease, from one of several causes: the retention of urea and the reduced elimination of other urinary constituents, the dropsical tendency of the brain, the enlargement of the heart, or the hardened condition of the arteries.

But headache is more frequent in other forms of nephritis in which the connective tissue between the working cells of the kidneys becomes increased through irritation and inflammation and then contracts, the kidneys usually becoming smaller than normal. (Chronic interstitial nephritis.) In this form the urine is increased in amount, which is especially noticeable at night, and there is

usually an intense thirst. But the arteries become harder than in the previous form; also the heart is larger, from thickening of the heart muscle, but later the heart is very likely to lose its compensation and become dilated, with a galloping beat. Difficult breathing develops from uremia, or heart disturbance.

Besides numerous other symptoms, headache is a very prominent symptom of the contracted kidney or the kidney with connective tissue increase. This symptom may result from the arteriosclerotic condition (to be mentioned separately later), or from the active cerebral hyperemia of cardiac enlargement, or from the passive cerebral hyperemia of cardiac dilation. And in any case there will be considerable toxemia.

This symptom, headache, may be an early and constant feature of the disease. It is usually worse in the morning, and is frequently quite similar to the headache of migraine. Since the nephritis is a marked change in a vital organ that responds slowly to any form of treatment, the headache may be a troublesome symptom, failing to respond to any treatment unless, or until, the kidney condition is vastly improved.

Uremia. Uremia is a toxemia developing in conditions where there is a suppression of urine, and sometimes in severe vomiting and hysteria. The kidney condition in which it develops is usually an acute nephritis. Sometimes there is not a total suppression of urine, but there must be practically this condition before uremia develops.

So far it has not yet been discovered just what constituents of urine cause the symptoms of uremia, or what the nature of the poison may be, though the opinion of investigators is that whatever the poison it is something that should be eliminated through the kidneys. And yet there are other theories as to the causes. It may be that the internal secretion activity of the kidneys is disturbed; or, as there is an edema of the brain in these cases, it may be that some condition of the brain causes the uremia; again, some think that as the cells of the kidneys are destroyed there is produced by them a specific form of poison.

Whatever the cause of the phenomena of uremia, they denote an unusual degree of toxic poisoning of the nervous system and of the body as a whole, and they produce a very pronounced effect upon the brain. The most

pronounced symptoms are nausea and vomiting; diarrhea; severe abdominal pains; various mental and cerebral symptoms, as mania, delusions, delirium, convulsions, coma; local paralyses, and headache. The headache is important, and may be one of the first symptoms to develop. It is freqently associated with dizziness, and is usually located at the back of the head, extending down to and into the neck. It may linger for some time after the severity of the uremia subsides, but it is usually an early symptom to pass away.

Puerperal Eclampsia. This is a far too frequent condition of severe convulsions developing in pregnant women or those who have just given birth to a child, usually the very young or older women with their first child, or when twins or triplets are born. There is much uncertainty as to the cause of this condition, and various organs have been blamed for it. Formerly it was considered as an uremia. Some have considered it the result of poisons generated in the uterus or placenta (the structure that becomes the "afterbirth"), or the fetus. Even the breasts have been blamed and in some instances have been amputated or treated to reduce their activity.

But the real cause is lack of proper care in practically all phases of existence of the pregnant woman, producing a high degree of preventable toxemia and enervation.

This condition has as one of its symptoms a headache. In the true eclamptic convulsions of course there will be no headache. But for days or weeks before the attack develops (at or near childbirth) there may be the headache together with swellings of the hands and feet or perhaps of the face, reduction in amount of urine which is highly colored, backache, pains and pressure in the abdomen, nausea and vomiting, perhaps dizziness, head noises and disturbances of vision. The headache is constant and is frequently throbbing in character. Like most other conditions, even these premonitory symptoms could be avoided with proper care, but certainly they are sufficiently indicative of an autotoxic condition to warrant deep concern and prompt action.

The **"Kidney of Pregnancy"** is a disorder of the kidneys developing, as the term implies, during a term of pregnancy. The exact cause is, here again, uncertain, but along with the condition are all the signs and symptoms of nephritis and, in fact, a genuine nephritis

does exist. The headache that is frequently associated with the disturbance is similar to that of a nephritis, and if by any course of treatment the kidneys are made to function more normally the headache disappears. It may or may not disappear following childbirth; much depends upon whether or not the nephritis remains, and upon the degree of kidney destruction.

Renal Calculus *(Kidney Stone).* Stones may be present in the kidney for years, with or without occasional attacks of renal colic. There is frequently pain or dull soreness in the back, intermittent or paroxysmal, and sometimes there is blood in the urine. Pus in the urine is more common and may occur at times for years. Severe headache is quite common with kidney stones, but the persons may be in excellent health; they are often more or less gouty and usually they are "well fed."

AUTOTOXIC HEADACHES OF DISORDERS OF THE LIVER

Congestion of the Liver may be either active, from too much arterial blood, or passive, from slow escape of venous blood. The active may be caused by dietetic errors, abuse

of alcohol, or acute infectious fevers. The passive may be due to some disorder that directly obstructs the general venous circulation, as chronic heart or lung disease. The symptoms are the same in both forms, but more severe in the active, and are a fullness in the stomach region, loss of appetite, nausea, gaseous distention, pain or pressure over the stomach and liver areas, and headache of a dull type, over the entire head or at the back of the head. There may be a slight jaundice, at least a slight tinge of the eyes.

Jaundice. Jaundice may be caused by obstructive agencies (gallstones, catarrhal swellings, strictures, tumors, enlargement of organs, floating kidney, pregnant uterus, etc.); toxic agents, as certain poisons (phosphorus, arsenic, chloroform, chloral, benzol, etc.); infectious fevers; congenital and acquired "family jaundice"; pernicious anemia, and other blood-destroying conditions. Dietetic indiscretions and wrong personal hygiene are at the base of practically all of these. The main symptom is a greenish discoloration of all visible portions of the body and of all discharges; itching, boils and other skin conditions; loss of appetite, bitter taste,

flatulence, constipation or diarrhea, lack of desire for fats and meats. The pulse is slow except sometimes in chronic jaundice. Nervous symptoms are irritability, depression and weakness, sometimes severe prostration (as in typhoid) and delirium. Hemorrhages are not uncommon, and wounds heal slowly. Headache is fairly constant, and may be an annoying dull ache as in liver congestion, or occasionally a severe "shooting" pain. When the bile is eliminated from the blood and tissues the headache subsides and disappears entirely with the correction of the jaundice.

Acute Yellow Atrophy. This is a destruction of liver cells over a considerable area, the cause of which is unknown. There are toxemia, jaundice, and contraction of the liver. After a few days of gastric trouble and jaundice there are numerous symptoms more or less serious in nature. These include headache, delirium, sometimes convulsions, tremors, vomiting which occassionally contains blood; the skin becomes more deeply jaundiced and coma may come on at any time in from two to forty days. Death usually results, but recovery is not infrequent in the subacute cases, which may run for several months.

CHAPTER II

Headaches of Constitutional or Metabolic Diseases

METABOLISM constitutes the process of tearing down old cells and preparing them and all other waste material for expulsion from the body and the process of building and rebuilding structures from the food, air and water supplied. Each structure of the body works harmoniously with all other structures; but when one becomes defective in action others are disturbed, either by depression or by stimulation to do undone work. Many disorders are not directly metabolic in nature, though in the final analysis practically every disorder in reality, is due to some metabolic disturbance. But in some particular diseases there is a definite disturbance of the constructive or destructive functions of certain cell groups, and these have been classed as metabolic diseases.

Rheumatism. Rheumatism is one of these metabolic diseases, but the symptoms are

largely due to toxic elements, not always discoverable. Usually there have been dietetic indiscretions, too much meat and starches, too little water internally, constipation, lack of hygienic care, especially of the skin, possibly long exposures to cold and dampness, perhaps combined with heavy labor. The "rheumatic diathesis," commonly blamed on "inherited" susceptibility, is usually nothing but the family mode of life that is responsible for rheumatism in parents or others of the family. However, there is very frequently a focus of infection somewhere in the body, as in pus pockets about tooth roots, infection in the appendix, tubes, gall bladder, etc. Though they have different manifestations, acute and chronic rheumatism, gout, arthritis deformans and other conditions are very similar as to cause. Acute rheumatism that drags on for weeks and months is sometimes termed subacute rheumatism, and some claim that chronic rheumatism is always arthritis deformans.

There are three forms of rheumatic headache. One is associated with rheumatism and due to some type of intestinal toxemia or disturbed metabolism, the headache being merely a symptom of the cause of rheumatism. The

headache is usually general and like that appearing in other toxemias.

Another form is a true muscular rheumatism of the scalp muscle. Any motion of this muscle, by active contraction or by massage, aggravates the pain. Usually the patient has had other rheumatic attacks in different parts of the body, sometimes an acute or subacute articular rheumatism. Exposures to cold and dampness may bring on the attacks, which may last for from a few hours to several days or even several weeks. Cool breezes after washing the head or perspiring may start the attacks.

The *Induration or Nodular Headache* is the third form of rheumatic headache, but it has received special attention only quite recently. Men may have this headache, but it is usually found in women well along in years who have usually been notably free from headaches earlier in their lives. After its first appearance the headache usually remains in some degree. The whole head or the back of the head is the seat of the pain. There is quite often nausea, but rarely vomiting. The individual headache attacks are most often brought on by chilling the body—as in wash-

ing the hair, exposure to temperature changes, wetting the feet or other parts of the body, profuse perspiration without opportunity to dry properly or change clothing, etc. Rain, snow, storms, lowered barometric pressure, etc., frequently bring on severe attacks, just as they do in ordinary rheumatism.

Practically always a thorough examination will reveal extremely tender little lumps in the scalp and neck muscles. These are about the size of a flax seed up to as large as a pea or bean, and are especially tender during an attack. The headache usually starts at the nape of the neck or at the base of the head, and not at the front as in migraine and neurasthenic headache; also, it is on both sides and not on one side as in migraine or in spots or areas as in neurasthenic headache.

Gout is a condition rheumatic in nature, associated with an excess of uric acid compounds in the blood and desposits of sodium biurate in the joints and other structures. It results from overeating and sedentary habits, constipation, nervous strains, and abuse of wines and malt liquors, also from lead-poisoning. Associated with it may be an enlargement of the heart, arteriosclerosis, or one form

of Bright's disease. In the acute attacks the great toe is the seat of the first and greatest swelling and pain, and there are digestive disturbances and restlessness, irritability, disturbed sleep, and a sullen, moody disposition. An irritating headache, probably with a sensitive scalp, is present in most cases. Neuralgias and sciatica are not infrequent, and a common termination is apoplexy. The acute and chronic forms are not frequent in this country.

Lithemia. This is a form of gout known as "non-articular gout," and is found most frequently in America. The symptoms are disturbances of digestion and appetite, foul breath, acid belchings, heartburn, and gas; scant and dark urine that leaves a brickdust deposit on standing and so concentrated and irritating that there is aching in the loins; increased blood pressure and some degree of arteriosclerosis. The nervous symptoms include dizziness, restless sleep or insomnia, disturbed memory, physical and mental indisposition, irritability, depression, ringing in the ears, various neuralgic pains, and headache usually in the temples.

Oxaluria. This is a condition more or less

similar to lithemia in associated symptoms, and thought to result from the consumption of large quantities of certain foods, such as grapes, apples, pears, asparagus, rhubarb and spinach, and also from a deficiency of hydrochloric acid in the stomach, and from intestinal fermentation. The headache of this condition is much like the one present in lithemia.

Diabetes. The pancreas and another gland of internal secretion (the pituitary gland located within the skull) govern the transformation of sugars and starches and also a certain amount of proteins and fats into simple forms of sugars most of which are stored up in the liver where they are converted into a still simpler sugar, glycogen. Part of this is then stored up in the muscles until required for the production of energy, and when exhausted the supply is replenished from the liver's store. Diabetes is a disease of carbohydrate metabolism, due to one or more of several causes: faulty sugar storage by the liver; some fault of the muscles; excessive consumption of carbohydrates, especially sugars; some brain disturbance; abnormal secretion of the pancreas governing digestion of starches and

sugars; tumor or other disturbance of the pituitary, or of the thyroid or suprarenal glands; also fevers, mental shock, gout, and coal gas suffocation. In any case there is a definite disturbance of metabolism, chiefly as regards the carbohydrates, which "hurry through the body," never being stored as glycogen.

The common symptoms are loss of weight and strength, inordinate appetite and thirst, frequent urination of large quantities of pale, sugary urine, muscular cramps, harsh and dry skin with itching and, frequently, boils. Nervous symptoms include depression of spirits, failure of vision, disturbances of reflexes, neuralgia, and headache. The headache is not characteristic, but from the reduced blood pressure may be similar to the headache of cerebral or general anemia.

Disturbances of the Thyroid Gland *(Goitre).* Disturbances of the glands of internal secretion, of which the thyroid is one, result in a disturbance of metabolism, because of their influence in the proper transference of food into fuel and in cell activity and elimination. It is to be expected, then, that there will be symptoms of a disordered metabolism,

in the disturbance of the thyroid gland known as goitre, especially in the form termed exophthalmic goitre—the goitre associated with protruding eyeballs, very rapid heart action and fine muscular tremors. A very small simple goitre may produce no symptoms, but the gland, which is located about the Adam's apple, will be slightly swollen. Larger goitres even of the simple form, may give a constant and aggravating headache from pressure upon the arteries to, or the veins from, the head, or from the resulting enlargement or dilation of the heart. Sometimes, in "inward goitre," the growth is internal, possibly beneath the sternum or breast bone, with pressure symptoms more marked than in the more visible forms. Either from the specific toxemia or from interference with the circulation to or from the brain there may be a fairly constant headache, of varying degrees of intensity. If the cranial circulation is disturbed there may be the typical active or passive congestive headache, though the cleancut headache of either type is not usual.

Hemophilia. This is a peculiar condition of metabolism or blood chemistry wherein the coagulability of the blood is defective, and

upon the slightest provocation there is bleeding, in amounts always approaching a hemorrhage. The bleeding may occur from almost any part of the body, as the nose, the skin, the uterus, stomach, bowels, and, quite frequently into the joints. Because of the loss of blood there may be an anemic headache, or there may be some other condition responsible for the headache of hemophilia, which is not, however, a constant symptom.

CHAPTER III

Toxic Headaches of Infectious Diseases—Infectious Germs

DURING the period of invasion of most of the acute infectious diseases there are numerous symptoms called prodromal symptoms. These vary with the disease, but in the great majority of cases there is a headache. In many of these diseases the nervous symptoms continue after the onset of the disease proper. The headache varies in type and severity in the different diseases, but it usually extends over the entire head and is of a throbbing nature, especially after the fever stage has developed.

Among the acute diseases which produce a headache may be mentioned *smallpox*, where there is usually a severe frontal headache associated with a severe backache—"as if the back were breaking," and vomiting; *measles*, in which the headache occurs during the stage of invasion (before the disease can be positively diagnosed), and with it are catarrhal symptoms of "running nose," redness of the

eyes, sneezing, pain in the eyes when in the light, cough and hoarseness; *scarlet fever*, in which also there is great restlessness, sleeplessness, and delirium, possibly convulsions, especially in small children; *diphtheria,* in which there is a headache as a symptom during the stage of invasion or later after the disease is well developed.

In the same class may be considered *grip* and *influenza,* which start suddenly with loss of energy, indisposition, chilliness, great prostration, backache, catarrhal symptoms, a metallic cough, and a severe headache. In the common forms of *cerebrospinal meningitis* there is usually a most excrutiating pain in the head, also in the back and legs, following an abrupt chill; in the more severe form the sudden chill is followed by a severe headache, with vomiting, moderate fever and convulsions and, usually, collapse and death within a few hours.

In *whooping cough* there is little or no headache, though extreme coughing may cause a congestive headache from the strain upon the heart and the retardation of return venous flow from the head. *German measles* and *chicken-pox* are frequently so mild that there are no nervous or systemic symptoms, though

in the more severe cases there may be a rather mild headache. In *mumps* there is usually no headache, or but a mild one.

In *acute catarrhal bronchitis* there may be a mild degree of headache in the class of patients in whom any fever or general disturbance is associated with nervous symptoms, but in most cases there is no headache. But in *capillary bronchitis,* or bronchopneumonia, especially in what may be called the cerebral cases, there may be convulsions, apathy, pain in the eyes upon exposure to light, severe pain in the head and a drawing backward of the head from stiffening of the neck muscles. In the form of pneumonia usually called *typhoid pneumonia* there are symptoms of typhoid fever in addition to those of pneumonia—severe prostration and stupor, high fever, muttering delirium, and headache. Evidently this form has a more marked degree of toxemia than the other forms, thus accounting for the double set of symptoms. In other forms of lung disease there may be a passive congestion headache resulting from the blocking of the return venous circulation.

In *acute coryza or common cold* there is almost always a congestion of the head and in

most cases a headache of a dull type, usually at the root of the nose or back of the forehead or, probably, in or about the eyes. This headache is too well known to need description, and colds are so universal that associated symptoms are familiar to all. In *chronic nasal catarrh* or chronic rhinitis there is usually a dull frontal headache, perhaps intermittent as the catarrhal condition fluctuates. These headaches may be the result of the congestion or local irritation, or of the associated general toxemia invariably present in chronic catarrh.

In *malaria* or malarial fever of the intermittent type (sometimes called "fever and ague") there are three stages of the attacks—the cold or chilling stage, the hot stage, and the sweating stage. In the first stage there is a mild headache, general and dull in character, frequently gradually becoming more severe as the second stage approaches. When the hot stage develops there is a severe throbbing pain in the head, also in the back and legs, increasing as the fever mounts. When the stage of sweating appears all symptoms, including the headache, disappear comparatively rapidly and within an hour or two this stage is over and the patient falls into a refreshing sleep,

to awaken free from all symptoms. In the malaria known as *remittent fever* the stages are very irregular and, in fact, they may run together, the fever stage usually being the most severe stage. The headaches may be quite severe or comparatively mild.

Relapsing fever, typhus fever, and *dengue* are all rare diseases in America, but they are not unknown. An intense and distressing degree of pain in the head is common in each of these diseases. The various *plagues,* as bubonic, pneumonic, septicemic, and abortive plagues have been practically eliminated, but they yet occur at times where there is overcrowding in very unsanitary conditions, with bad food, especially in warm weather. Headache occurs in a severe degree in the first-mentioned plague, less severe and less frequent in the others.

Glandular fever is an acute infectious disease of childhood in which the lymph glands of the neck become swollen and very tender. There is a high fever, and nausea, vomiting and frequently a headache results, probably from the fever. The fever usually subsides within two or three days, but the glands remain swollen (from the size of a bean to that of a goose

egg) for two or three weeks. The headache and pains in the neck are aggravated by motions of the head. The condition is not, as a rule, serious.

Typhoid or enteric fever is in reality a disorder of the intestinal tract, but it is also an acute infection. In the prodromal symptoms of this disorder headache is fairly constant, together with increasing weakness, backache and uncertain pains about the body, and usually nose-bleed and a slight diarrhea. Headache is common after the disease itself has developed, though in the very severe cases there is coma and therefore no headache. The headache of this disease may be from the toxemia, from internal secretion exhaustion, or from the fever.

In acute *tonsillitis* there is frequently a fairly high fever, especially in very small children. During the development of the disease or after it has become well developed there is apt to be a rather severe headache of the throbbing type, from toxemia or fever. In all the diseases mentioned above there is, as was shown, a headache of varying intensity in the different diseases or in different individuals. In some the headache occurs during the period of invasion, in others during the time the

disease itself is at its height, and in still others during both stages. All of these diseases are toxic to a considerable extent. There may be a particular germ associated with many of them, but regardless of the germ or a host of germs of various kinds there is sufficient toxemia to cause an acute disturbance—the germs appearing merely because there is sufficient food for their existence and increase.

The body that is incapable of exerting an acute housecleaning effort is in a condition of devitalization and its nervous system is usually too depressed, too benumbed or too inactive to develop headache or other symptoms. The toxins causing these diseases may originate in the digestive canal, where most diseases originate, but as the various organs become overloaded with these elements they are hindered in their functions and may in turn give rise to their own peculiar toxins, until we have one disease or another in characteristic form.

We cannot doubt that germs do play a part in disease, and sometimes a very important part; but I deny that they are a primary causative factor. They may be responsible, however, for the more severe and serious symptoms in some cases. Germs are minute organisms

that go through a cycle of life just as any living structure does: they grow, reproduce or multiply, give off waste materials, die; and in the process they utilize oxygen—oxygen that is required by the body tissues, especially in time of disease. The wastes they produce are frequently extremely toxic, the degree of toxicity depending somewhat upon the nature of the germs but much more upon the kind and amount of waste material upon which they live and the tissues in which they multiply. These toxins of germ life in some cases may produce alarming symptoms within a short time, while in other cases the toxins are comparatively mild in action and incubate slowly so that considerable time passes before serious or marked symptoms develop.

The period of incubation of an acute fever disease is that period between exposure and the beginning of disease symptoms—of the disease proper; during this time, which may be from one or two days to two or three weeks, the germs are developing and the length of time they require depends upon their type, climatic conditions, inward autotoxic conditions, the body's natural resistance, etc. If the proper steps to put the body in order are

taken at the very onset of the premonitory symptoms or, better yet, at the time of exposure, I claim that few if any diseases will ever develop to the stage where typical symptoms will lead to a positive diagnosis.

CHAPTER IV

Toxic Headaches from Drugs and Drug-Containing Substances

MANY people take drugs knowingly for the relief of various pains, symptoms or disease conditions; others take drugs regularly without the knowledge of their presence, and still others are knowingly or unknowingly exposed to drugs (chemicals) in their environments and occupations. Whether purposely or innocently taken or encountered, the drugs have a definite effect, more or less marked according to the susceptibility of the individual and the amount and frequency of consumption or contact.

Coffee contains from one to three percent of a highly toxic alkaloid substance called caffeine, but because of its conspicuous chemical nature and activity the caffeine outweighs all other ingredients in the effect of coffee upon the body. Both the extracted caffeine, and strong infusions of black coffee were formerly used freely in medicine, but this practice has

been largely discontinued because the universal use of coffee as a beverage has made most people immune to its action as a medicine—but no better drug was substituted for it.

Coffee is a marked stimulant, but it has, also, a corresponding reaction of depression. It is this latter stage of reaction that is of greater importance than the primary exciting stage. Coffee has been known to cause death in certain cases of cardiac weakness or disease. In some individuals the primary effect of coffee may produce a headache because of the stimulation of circulation and the increase in blood pressure. In the stage of reaction a headache may be produced, because of the lowered blood pressure, resulting in cerebral anemia.

Some people have the coffee habit. They have used so much of the beverage and for so long a time that they have a headache when they are deprived of a cup of coffee at the usual time. When *any* substance produces this effect upon the body it is time to discontinue its use long enough to overcome such reaction. The headache in these cases is either the result of the cry of the nervous system

for its usual stimulation, or is due to the slowing up of the circulation and the deposition of nerve-irritating toxins of the blood in the areas of the nerves and in the nerves responsible for the headache. Coffee stimulates the nerves and the circulation and raises the blood pressure so that the toxins are reabsorbed into the blood stream and thus removed from the nerves of the head—and this removes the headache.

Tea is quite similar in its composition to coffee, and also in its effects. There is more caffeine in tea than in coffee—in tea there is from one to four percent caffeine. At one time this alkaloid in tea was called theine, but it was found (in 1838) to be identical with caffeine in coffee, and it is now called caffeine. Other ingredients in tea prevent the caffeine from having such marked effects as in coffee, but usually there is little difference in the effects produced.

Another source of harm in tea is the tannin, which is present in large amounts—from twelve to seventeen percent. Tannin is a marked astringent, especially to the mucous membranes, and it is largely responsible for the constipation and dyspeptic disturbances of

tea drinkers; there may also be produced a headache from these disturbances, in addition to the headache produced by the caffeine. It might be of interest to state here that caffeine is present in other plants used in beverages for the stimulating effect—the cola nut used by the Africans, and the maté and guarana used in South America by different tribes. Blindness has been produced by the overuse of caffeine, or by its ordinary use by those susceptible to its ill effects.

Tobacco is so universally used that many do not consider it a direct poison. It is true that the body more or less adapts itself to the drug, but never does it fail to produce some deleterious effect. Practically every one has known the symptoms of acute tobacco poisoning, when first attempting to smoke or chew. The symptoms involve every function of the body, and an intense headache is one of the fairly constant symptoms, following dizziness, nausea, disturbance of vision, sweating, great weakness, and numerous other symptoms.

Chronic tobacco poisoning is most indicated in the disturbance of the heart action, circulation and nervous system. The cardiac rhythm in "tobacco heart" is altered so that

there may be complete loss of this remarkable characteristic, the heart fluttering very irregularly. The heart muscle may become very weak, and dilation may develop. Neurasthenia and other nervous disturbances are common in the tobacco user, and the intellect is dulled to some extent. Because of the direct absorption of the toxic elements from the mucous membrane of the mouth, chewing and cigar smoking are considered the most harmful methods of using "the weed."

The most active principle of tobacco is nicotine, a highly poisonous alkaloid; but in the "curing" processes other compounds are produced from oxidation and from bacterial action. Nicotine in tobacco varies from one to twelve percent, most American tobaccos containing an average of about four percent. During the smoking the combustion creates various substances, also injurious. Thus tobacco provides a large amount of toxic material to affect the body of the tobacco user. One of the prominent symptoms of excess use or of moderate use in the sensitive person is an aggravating headache. This may be from the toxins alone, or from disturbance of digestion or heart and circulation—the

latter sometimes producing cerebral anemia, sometimes cerebral congestion.

Alcohol produces so many disturbances of the functions of the body that there are practically none that use it who escape its harmful effects. Either chronic or acute alcoholic poisoning may result in a general headache of a congestive type, and sometimes it requires very little alcohol to give this effect. The "morning after the night before" is known to all, from first-hand experience or hearsay. On these mornings, after a heavy sleep, there is a severe throbbing headache covering the entire head, though sometimes it seems centered about the top of the head, at other times is more frontal. But the headache is the result of the alcohol and not of the heavy slumber. Constant or daily headaches are frequently present in the habitual user of alcohol. These headaches may result from the direct toxic action of the alcohol, or from the digestive, circulatory and kidney changes. There may be also marked change in the brain itself. One of the effects of alcohol is a disordered metabolism and the production of a general toxemia, from decreased tissue oxidation. "Bad whiskey" is too frequently used nowa-

days, with disastrous results in many cases.

Recognized Drugs. By their toxic effects various drugs secure actions upon the body which are considered as curative by the medical profession. Some of them perhaps do no particular harm when taken in small doses and under proper conditions, but when taken in large doses they are highly poisonous and may even cause death.

The *coal tar synthetic remedies* which are quite universally employed in the treatment of headache are direct and distinct poisons, as indicated by their pronounced effects when taken in large doses, or even in small doses by many individuals. *Acetanilid* destroys the hemoglobin of the blood and greatly reduces its oxygen-carrying function. It also greatly depresses the action of the heart. It reduces oxidation of food and also general metabolism, and a congestive headache is a pronounced feature of poisoning by it. Sometimes this headache results when the drug has been given for headache, when both forms of headache are present. *Acetphenacetin* (also called phenacetin) has a similar but less marked effect. *Antipyrine* is more inclined to produce harmful effects in even medicinal doses.

Many other drugs have the effect of partially destroying the blood, besides affecting in a marked way the nervous and muscular systems. Prominent among these are the nitrites. *Ethyl nitrite* (known as nitrous ether or sweet spirits of nitre) is used in fevers and as an antispasmodic. A slight overdose produces giddiness, throbbing arteries and headache, and breathing difficulties. The fumes cause the same symptoms. *Amyl nitrite* is known quite well from the fact that it is frequently used in pearls, in cases of fainting, menstrual pains, angina pectoris, asthma, etc. After the immediate effects of flushing, labored breathing, rapid heart action and giddiness pass off there is a dull headache, also general lassitude remaining. *Sodium nitrite* is a third antispasmodic nitrite that may produce alarming symptoms, especially violent and disorderly heart action, great dizziness and throbbing headache, and general weakness. *Nitroglycerine* is not a nitrite but it yields nitrites upon decomposition, with typical nitrite symptoms except that it produces a more profound and obstinate splitting headache. This drug is also used as an antispasmodic, and in certain heart affections.

Arnica is sometimes used internally in rheumatism and erysipelas, also in painful menstruation and for reducing fevers. In overdoses it lowers temperature, breathing and heart action, and produces an extreme headache, with paralysis of the muscles of the body resulting.

Though *cantharis* (cantharides, Spanish fly) is seldom prescribed for internal use it is sometimes given internally with vile intent; but in other ways also overdoses may be taken, with serious symptoms. There is irritation of the kidneys and sexual organs, the pulse is small and hurried, the breathing rapid, the skin hot, and there is a violent throbbing headache. Coma and death may follow.

Carbolic acid, or phenol, is sometimes used externally, sometimes internally, and sometimes the fumes are inhaled, the latter for irritable cough in bronchitis. In mild poisoning, especially from absorption from surgical dressings, there is frequently a pronounced headache, together with loss of appetite, lassitude, and bronchial cough. Other symptoms outweigh the headache in severe poisoning.

Chloral hydrate is not infrequently taken by users of alcoholic liquors to allay nervous-

ness and other effects of the alcohol. The symptoms from this combination may be a flushing and throbbing of the face and head, with a lingering severe headache later.

Creosote is rarely a cause of poisoning but occasionally it is, by accident. Headache appears among an array of rapidly developing symptoms. This drug acts much like carbolic acid, only less severely.

Digitalis (foxglove) is a standard remedy in case of disease and weakness of the heart where a cardiac stimulant and tonic are considered required for this organ. Overdoses may produce alarming symptoms, even death. Throbbing headache is an early symptom, with rigidity, weariness and drowsiness; then come violent vomiting and gradually increasing congestion headache until it is extremely severe; the heart action is very forcible and a feeling of suffocation is experienced.

Quinine, the "specific" for malaria, quite frequently causes poisoning. It produces a roaring and hissing in the ears which may be severe enough to be interpreted by some as a headache. Those who have taken even comparatively small doses over a long period of time are apt to have these disturbances.

Salicylic acid and the salicylates (sodium, lithium, ammonium, strontium, and methyl salicylates), the "specifics" for rheumatism, gout and allied diseases, produce very similar symptoms to quinine.

Formaldehyde, especially the vapor or formalin, may cause severe symptoms in non-fatal poisoning, and headache may be one of these, from the suppression of urine or directly. The patient appears to be intoxicated.

A toxemia that should not be forgotten is that of vaccinia, produced by *vaccination.* The marked general reaction to the inoculation in many cases is well known, and death is not infrequent. Fever, malaise, general aching, loss of appetite, restlessness, sleeplessness, and, usually, a throbbing headache are the common symptoms; and the more toxic the individual before the vaccination (also the more susceptible from hereditary causes) the more severe will be these symptoms. Other very similar toxemias are those resulting from *inoculation for typhoid and paratyphoid,* the *antitoxin* given for diphtheria, also *serums* for rheumatism, hay fever, syphilis, etc. Sometimes, in fact frequently, the symptoms are

those of an acute infectious disease. There is usually some degree of headache, and it is frequently intensely throbbing.

POISONOUS GASES

Carbon dioxide (carbonic acid or choke damp) may cause sudden death, but when one is gradually poisoned by it there is produced a headache of the expanding type, with dizziness, pressure in the temples, ringing in the ears, sleepiness, perhaps nausea and muscular weakness.

Carbon monoxide (carbonic oxide) results from incomplete oxidation when burning carbon-containing substances. It is always present in coal fires. This is the extremely poisonous element in illuminating gas, but open coal and charcoal fires are also frequent sources of severe or fatal poisoning. Other sources are faulty flues through which the gas escapes, flues and stove pipes that have been heated red hot, hot air furnaces, and ordinary stoves with defective draft. In acute poisoning by this gas a prominent symptom is an excruciating headache, with giddiness, weakness and prostration and, frequently, convulsions. The greater the amount of gas breathed into

the lungs and the longer the exposure, the greater and more permanent becomes the damage to the blood. Chronic poisoning by this gas may be overlooked, since the symptoms produced resemble malaria. There may or may not be a headache, though there is usually a vague sense of fullness in the head, with slight aching. This form is usually from leaking gas pipes in the house or in the ground near the house. Poorly ventilated garages are also a frequent source of this poisoning.

Illuminating gas (fuel gas, coal gas), when inhaled in large amounts quickly causes a dull headache gradually increasing in intensity, with giddiness, loss of memory, staggering, muscular weakness increasing to complete prostration, nausea, and within a short time unconsciousness, complete suffocation and death. But the symptoms are not so severe when the gas is inhaled in smaller amounts during a longer period of time, though the symptoms may linger for days after the cause has been removed. There may be a leak in gas pipes in an adjacent room or even beneath the house, as in a cellar; and even though the gas may be inhaled during the daytime, the

poisoning usually takes place during the sleeping hours.

The gas is not always detectable by its odor, for the odors may be largely extracted by passage through separating walls or through the earth. In such cases poisoning may occur without the presence of gas being discernible. When the earth is frozen solid the gas may have to travel underground many feet before it reaches a cellar, from which it may then reach living or sleeping rooms in sufficient amounts to cause poisoning. Otherwise inexplainable symptoms of headache, weariness, drowsiness, fatigue, loss of appetite, vertigo and anemia may be due to some such sources as I have mentioned here. Such chronic poisoning may take place even when there may be no piping whatever into these houses.

Water-gas produces the same symptoms except that it is much more poisonous, volume for volume, than the coal gas it largely supplants in larger cities.

Food poisoning may come from many sources. Some poisons derived from foods produce digestive disorders, others produce diseases or nervous disorders that cause headache. Characteristic symptoms of cholera or

typhoid may develop in those ready for infection from any source when milk or drinking water or water used for washing foods is highly contaminated with the germs and toxins of these diseases. Poisoning from sausage and other pork products may produce a nonfebrile intoxication, with headache as one of the symptoms. Fish are a close second to pork as a source of contamination. Some kinds of fish seem to be poisonous during the breeding season; some are poisonous when not fresh; still others seem always to be poisonous. Fish also seem to have epidemics of disease (probably from the food they eat) which may render them poisonous. Imperfectly salted fish may develop highly toxic substances.

Poisoning by contaminated mussels is perhaps as frequent as poisoning by any other class of food. One type of poisoning chiefly affects the digestive tract, another brings out skin troubles, as hives and other eruptions, and a third type affects primarily the nervous system, with headache as a prominent symptom, others being vertigo, difficulty of breathing and speech, marked muscular weakness, and cold and numb extremities. Poisoning by oysters is also quite frequent, and there

may be similar symptoms from this food when contaminated.

Canned meats are quite prolific sources of poisoning, not necessarily ptomaine in type. Milk and milk products, as ice cream, cheese, custards, etc., when contaminated through the ingredients or through careless handling, have not infrequently caused poisoning, sometimes extremely serious in type and fatal in degree.

CHAPTER V

Toxic Headaches of Occupations

(Metals, Drugs, Chemicals, Gases, Etc.)

ANTIMONY is present to the extent of about twenty percent in printing type. Hence workers in type foundries, and type setters, may develop chronic poisoning by inhalation, and partly through absorption through the skin. The poisoning produces headache, dizziness, neuralgias, weariness and sex weakness.

Brass workers not infrequently get "brass-founder's ague" or "brass-molder's fever," the symptoms including a severe chill, weakness and cramps in the arms and legs, sweating, vomiting and headache. Seventy-five percent of new workers develop these symptoms, which usually pass off after a night's rest, and an immunity is soon acquired.

Workers in *bronze* develop headache, inflammation of the mucous membrane of the eyes and nose, digestive disturbances, and anemia. The acids, varnishes, buffing pow-

ders, etc., used in many bronze industries are partly responsible for these symptoms, and the same may be said of those in *brass* industries.

Ammonia does not directly cause headache, but in the establishments where it is made and condensed there may be produced an anemia from the inhalation of the fumes, and an anemic headache may result. *Ammonium chloride* (sal ammoniac) is used in industries, as in making patent leathers and oil cloths, in galvanizing and in lacquering preparations. Inhalation of its vapors causes headache, along with dizziness, numbness, rapid heart, nausea and vomiting.

Amyl alcohol is used in making dyes and fruit extracts, etc. Its fumes cause headache, head noises and dizziness, and it lowers blood pressure.

Aniline, from which coal tar remedies are derived, is itself a by-product of coal tar. It is used for coloring, for medical preparations, and in the cotton mills is a frequent source of severe poisoning, as it destroys the blood and alters the heart action. In the more severe poisoning headache does not appear or is outweighed by other more severe nervous

symptoms. In the milder cases headache develops. In chronic poisoning headache is the result of anemia and not directly due to the aniline.

Benzene (or benzol) is used in many trades, as in making nitrobenzol, carbolic acid, aniline, and for cleaning, scouring, etc. Chronic poisoning from inhaling the vapor deranges the nervous system and circulation, causing headache, dizziness, head noises, fainting and trembling of the arms.

Carbon monoxide has been mentioned earlier. Poisoning from it takes place in mines, coke factories, foundries, garages, etc. Headache is a symptom of acute and chronic poisoning by this gas.

In the preparation of *vanilla* essence the vapors when inhaled may produce headache, neuralgia, muscular cramps, and bladder irritation.

Ether is used in making certain kinds of smokeless powder, and its inhalation causes anemia that may result in headache. In hospitals, clinics and elsewhere where ether is employed there may be enough of the gas inhaled to cause some disorder of the blood or other structures.

Acute symptoms of poisoning by *naphtha* fumes are similar to those of benzine poisoning. Chronic poisoning causes a depressing dull headache.

Iodine vapor causes acute or chronic poisoning, the acute attack resembling an attack of influenza, with headache as one of the symptoms.

Poison gases are being experimented with continually and new gases are being discovered. Some of the gases used during the late war are now used commercially. Those who work in munition plants may be exposed to deadly poisons or to those which produce serious symptoms. Many of these may produce headache and other nervous and general symptoms, either directly or indirectly through their effect upon the blood and metabolism.

Wood alcohol (methyl alcohol) is used in the arts, as a solvent. Inhalation of its fumes may cause immediate death, but in smaller amounts it causes a severe frontal headache and pressure, wakefulness and restlessness, cramps, vomiting, difficult breathing and mild chills. Inhaled or taken internally it may cause permanent blindness following a severe

headache and pain and soreness and pressure in the eyeballs.

Inhalation of *nitrobenzol* and *dinitrobenzol* causes an acute poisoning, with pulsating headache, dizziness, low blood pressure, vomiting, difficult breathing, and cyanosis, and the latter causes visual defects.

Sulphur and *sulphurous acid* produce disturbances of the respiratory and digestive tracts and of vision. Headache may result from either, or from the anemia that follows the severe digestive disturbances.

Sulphuretted hydrogen produces a severe and grave acute poisoning, and a less severe chronic poisoning, with headache, wakefulness, and general reduction of metabolism and nutrition.

Turpentine may produce a headache from the chronic kidney disease or circulatory disturbance or the anemia that it creates.

Nitroglycerine is used extensively in the preparation of explosives. It is so readily absorbed into the body that some people have a violent throbbing headache merely from shaking hands with one who has been working with it or from inhaling the fumes from workers' clothes, though the workers themselves develop

some immunity against it in time. In severe poisoning occuring in mines and elsewhere following explosions the headache is excruciating and the almost demented victim may even strike his head against the walks, beams, or other solid substances.

Paraffin is used for insulating in the electrical trades and in water-proofing, and its fumes may cause headache, dizziness, difficult breathing, nausea and vomiting and digestive disturbances, with prostration.

Petroleum or *coal oil* not infrequently causes poisoning in wells. In chronic poisoning there are headache, dizziness, restlessness, hallucinations, and loss of memory, with cough and difficult breathing.

Fumes of *pyridin,* used in making hats, in gilding and wood polishing, etc., cause headache, dizziness, quivering and weakness of muscles.

The fumes of *pitch* and *tar* produce headache, dizziness and ringing in the ears, digestive and breathing troubles, sometimes paralysis.

In the preparation of *flax* and *hemp* one comes in contact with various chemicals and dust. In beating the stalks to soften the

fibres one may develop "beater's fever," with headache, neuralgias, general weakness, nasal and bronchial catarrh, also loss of the sense of smell. Inflammation of the middle ear may also develop.

In *rubber* manufacturing various toxic substances are used, many of which are capable of producing headache. Among these are benzine, naphtha, wood alcohol, all of which have been previously mentioned.

Compressed-air workers (in tunnels, on deep foundations, etc.) frequently inhale fumes of explosives, as nitrous gas and others, also irritant smokes and the gases of dampness, with the production of headache.

Mining submits the workers to hazards of gases from explosives, damp, or chemicals used. Headache of a severe type is a frequent symptom of inhalation of the various vapors, as explained under the various gases. *Stokers* and *firemen* on steamboats, tugs, barges and locomotives, and also *blacksmiths* occasionally inhale sufficient coal gas to produce a headache and other symptoms, though the intense heat may be responsible for the headache even though little or no gas has been inhaled.

City firemen are very frequently exposed

to inhalation of irritating and noxious smoke and chemicals, fumes of ammonia, burning rubber, and other substances, and are also exposed to intense heat. Headache may develop in these cases from one or more causes, or several acting simultaneously.

Concussions caused by explosions or detonations may cause headache, ringing in the ears, and some degree of deafness. This was a frequent effect of shell shock among fighters in the late war.

Rarified air, encountered in mountain, airplane and balloon ascents, causes headache, dizziness, chills and nausea; but these symptoms are usually recovered from immediately upon reaching lower levels.

Severe eye-strain is not infrequently the cause of headache, when one has not learned the proper methods of physical, mental and, especially, eye relaxation. Occupations leading to eye-strain are those where the lighting conditions are either inadequate or where the light is very intense, such as in working with molten metals, where the eyes may be exposed to intensely bright and moving objects and at the same time intense heat. The eyes are protected, of course, but some effects of the

light and heat are frequently felt, and headache is not unusual.

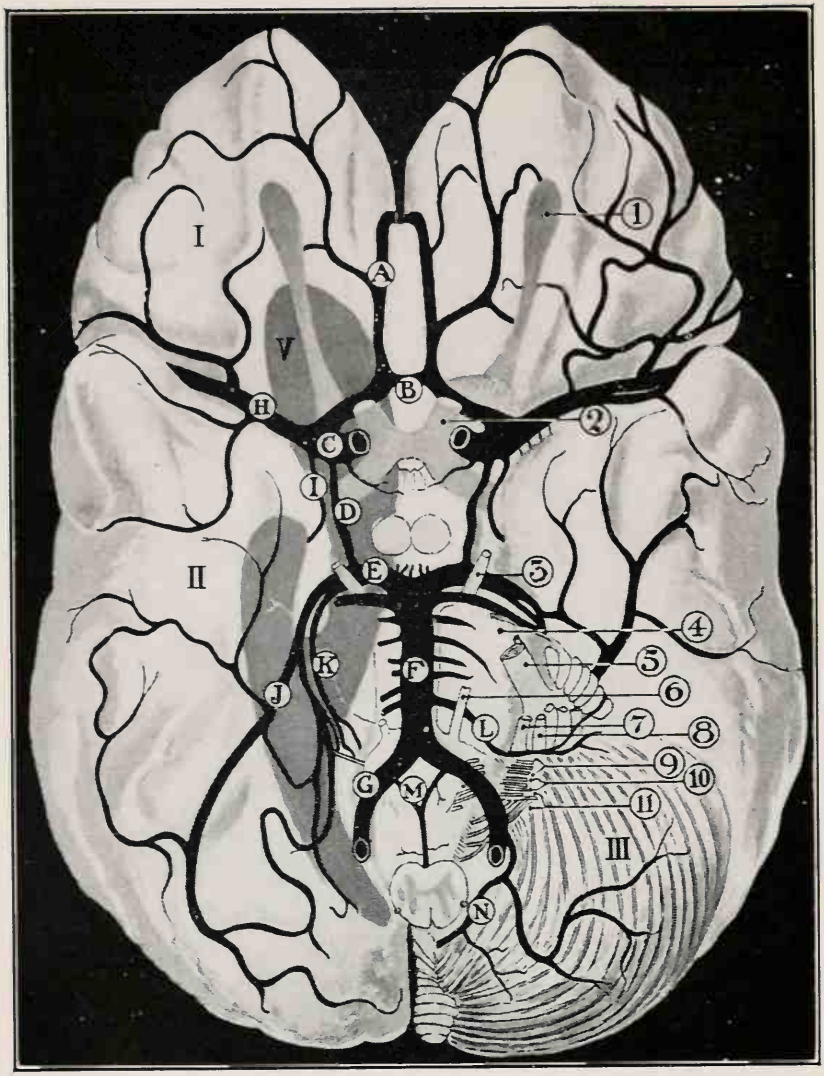
Workers in *pottery* and other ware are exposed to intense heat and, in drying rooms, to coal gas, and headache may result from either.

In the *tanning industry,* in *shoe-making* and *glove-making* the fumes of naphtha, turpentine and other noxious substances quite frequently produce various symptoms, including headache, as we have seen.

In the *garment trades* the workers are frequently exposed to chemicals that may produce headache directly or indirectly.

In the *dying industry* are used ammonia and anilin products, gasoline, naphtha, wood alcohol, etc., all of which may produce headache.

Lithographers, engravers and such workers use many acids of an irritating nature capable of producing anemia and metabolic disorders, with headache as an indirect result—possibly also from eyestrain.



A to N, Arteries supplying various regions of the brain. B, C, D, E, and F, on the two sides, form the "Circle of Willis." 1, olfactory nerve; 2, optic nerve; 3, third nerve; 4, fourth nerve; 5, fifth nerve; 6, sixth nerve; 7, seventh nerve; 8, eighth nerve; 9, ninth nerve; 10, tenth nerve; 11, eleventh nerve. Twelfth nerve origins to left of 9 to 11. I, Frontal lobe; II, Temporal lobe of Cerebrum; III, Cerebellum; V, Lateral Ventricle.

CHAPTER VI

Headaches of Circulating and Vascular Disturbances

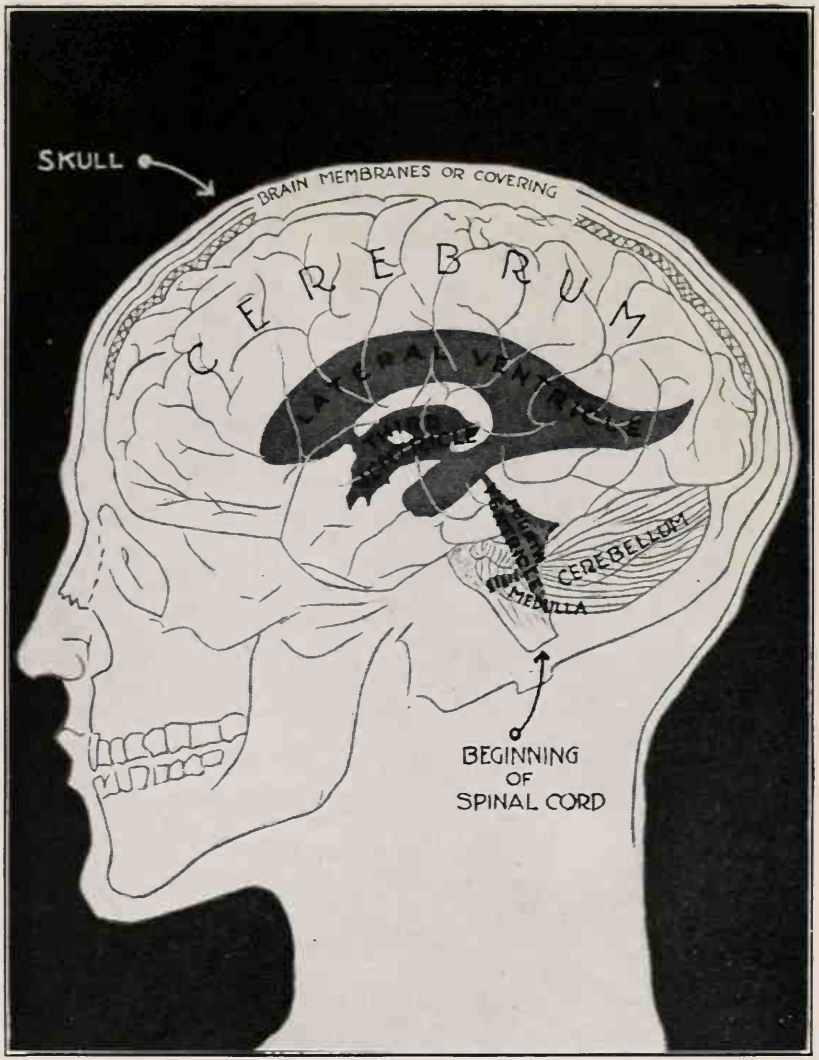
THE brain has a peculiar arrangement of blood vessels. Four distinct arteries, connected directly or indirectly, supply blood to the brain. There is adequate venous drainage, but the veins do not directly accompany the arteries as they do in most parts of the body. There is a very inefficient local arrangement for regulating the flow of blood through the vessels, and the brain circulation is therefore greatly influenced by variations in the general blood pressure.

In the adult the once-open spaces in the skull of infancy are closed over with non-yielding bone, which arrangement considerably reduces the variability of the circulation and of brain expansion. But there are cavities within the brain, between the brain and skull, and about the blood vessels themselves which contain a serous fluid that fluctuates in amount. There is a direct relationship between the amount of

fluid in these cavities and the amount of blood in the blood vessels of the brain; this arrangement keeps a comparatively uniform pressure within the skull and brain, and in health there is neither little enough pressure to give symptoms of anemia or great enough pressure to give symptoms of congestion.

The great activity of the brain makes it highly important that there be an adequate supply of blood to this organ, and an equally adequate drainage. The brain is capable of receiving one-fifth of the total blood supply of the body, and it uses up much of the blood's nourishing material and, equally important, much of the oxygen carried by the blood. Perhaps the need for oxygen is even greater than the need for other elements, since all brain and nerve activity is absolutely dependent upon oxygen for an approach to normal.

The brain circulation may be altered in several ways: there may be a deficiency, or anemia; an excess, or congestion—either active congestion (where the blood enters more rapidly than it is carried off by the veins), or passive congestion (when the blood cannot escape as rapidly as it normally enters the brain); the blood may be diseased or low in



This shows diagramatically the arrangement of the brain in the cranium, with the brain coverings and divisions. The continuous curved line from the top of the head (front) down to the eye region and on back to the ear region is the lower border of the cerebrum or forebrain. The ventricles, which are filled with fluid and connect with the central canal of the spinal cord, are well shown; there is a lateral ventricle on each side.

quality; or the blood vessels may be diseased.

Headaches of Anemia

When the blood is deficient in some of its elements, especially red blood cells or hemoglobin, or when the brain fails to receive the normal amount of normal blood, the brain is anemic. In the first instance there is general anemia, in the latter a local anemia.

General anemia. General anemia may be primary, or what is called pernicious, idiopathic, essential, progressive, malignant, etc., meaning a form that starts without known cause and progresses steadily, markedly resisting all known medical treatment; or it may be secondary, resulting from hemorrhage; poor food and hygiene, organic diseases as Bright's disease, gastritis, tuberculosis, hardening of the liver, cancer, etc.; toxic agents such as acute fevers and malaria; uremia; syphilis; intestinal parasites; from some congenital disease; and from certain metals and vapors; also from various occupations.

Pernicious anemia is insidious and may be noticed only after well developed. Early symptoms are physical and mental weakness, with confused thoughts coming only with ef-

fort; a pallor, with lemon-yellow skin; dizziness; breathing is labored and heart murmurs develop; the muscles are soft and flabby but do not waste away. Indigestions are frequent, the appetite capricious. The blood undergoes marked and typical changes, the red cells being greatly reduced in number though the hemoglobin may be increased, and a blood examination is necessary before a definite diagnosis is possible.

Another form of primary anemia is chlorosis (green sickness), found only in young women between fifteen and twenty-five. Among considered causes are imperfect sexual development, internal secretion disturbance, and toxic absorption from the constipated bowel. The general symptoms of anemia are present, also a greenish hue to the skin, menstrual disorders, hysterical tendencies, and perversions of appetite, but there is little loss of flesh. The red blood cells are only moderately reduced, but the hemoglobin is greatly reduced, usually as much as fifty percent.

Leukemia is another primary anemia, in two forms—splenic leukemia and lymphatic leukemia. In the former the red blood cells and hemoglobin are moderately reduced but

the white blood cells are enormously increased, and the spleen and liver are much enlarged. In the latter form there are also the general symptoms of anemia, with enlargement of the superficial lymph glands and moderate enlargement of the spleen. The acute stage is the most serious of all anemias, and occurs usually in children; the chronic form occurs usually in males, appears late in life and may last for years. There is marked emaciation in these anemias.

Another rare primary anemia of unknown cause is *Hodgkin's disease,* or pseudoleukemia, general lymphadenoma, or lymphatic anemia. There is progressive anemia, in which the white cells are moderately increased and the lymphatic glands enlarged. Young males not infrequently get it following simple inflammation of the lymphatic glands, as tonsillitis. The glands of the neck, under the arms, in the chest, groin and elsewhere are swollen but painless; the spleen is also swollen. It resembles lymphatic leukemia but the white blood cells are not increased.

A final type of primary anemia is *splenic anemia,* or splenomegaly. The red blood cells are moderately reduced, but the hemoglobin

may be down to forty-five percent; the liver is enormously enlarged. The disease may last for as long as eight or ten years.

Secondary Anemia has proportionate reduction of red blood cells and hemoglobin, and in extreme cases the blood resembles that of pernicious anemia. There is headache, dizziness, wakefulness or disturbed sleep, neuralgic pains, and a tendency to fainting. The pulse is rapid and the heart palpitates, and there may be a slight dropsy, beginning in the lower extremities. There is usually loss of flesh.

As mentioned earlier, a general anemia results in lessened blood to the brain for its nourishment, and lessened oxygen for cell activity and for reduction of the metabolic wastes to less toxic substances. It is not to be wondered at, then, that headache is one of the quite constant symptoms of general anemia, and in some forms there is marked giddiness.

HEADACHES OF HYPEREMIA

General Hyperemia *(Plethora.)* This is supposed to be a condition of increase above normal in the whole amount of blood in the body, but it is a doubtful condition. Those

well-fed individuals with florid complexion who are considered plethoric usually have no excess of blood, and in fact they may be generally anemic with local congestion of the face and head. If plethora does exist it is transient or temporary. But in that condition called plethora there is quite frequently cerebral congestion, either passive or active, and headache is quite common.

Cerebral Hyperemia (*Cephalemia*). As stated at the beginning of this chapter there are two forms of cerebral hyperemia—active and passive. The headaches of congestion are aggravated by stooping and lying down, straining at stool, by physical and mental exertion, and usually by tobacco, coffee, tea and alcohol. The patients are irritable, pessimistic, subject to outbreaks of emotion, and are usually "full-blooded," high meat or nitrogen consumers, with gouty or rheumatic tendencies, and either very active or quite lethargic.

Active Hyperemia *(Congestive Headache).* This is a condition of excess blood in the brain resulting from an increase in arterial supply. Anything that excites the circulation may cause active congestion of the brain, but congestion does not necessarily cause headache.

Those who have congestion headache most likely have an over-sensitive condition or some disease of the nerves, while those exempt have healthy nerves.

Conditions causing active cerebral congestion may be undue exposure to the direct rays of the sun; excessive mental concentration; violent physical activity that greatly increases the heart action; certain reflex conditions, as gastric or pelvic irritation; stimulants, or certain drugs as alcohol and nitroglycerine; and following operations. The headache is intense and throbbing and pulsating, general or worse over the top of the head; and it is increased by light and sound, stooping or lying down, and any exertion. There are dizziness and roaring in the ears, disturbed sleep and horrible dreams, restlessness day and night, and mental confusion. The arteries of the temples are throbbing. The blood pressure is increased, the pulse full, the face congested, and the eyes more or less bloodshot. Some degree of sweating relieves these symptoms. This condition is usually acute, the passive form chronic.

There is occasionally an anemic form of cerebral hyperemia in the nervous, "high

living" individuals who are sensitive to various emotional and physical conditions. Anger, the excitement of mirth or grief or other intense emotion, a hearty meal, a small amount of stimulant may cause a rush of blood to the head and a severe throbbing headache, with other symptoms of cerebral congestion may follow. These usually subside as soon as the stomach is emptied or the effect of the stimulant or emotion has worn off.

There is another form of congestive headache that may occur when the blood vessel walls are weak or when the nerves controlling them are below normal in tone, this condition being present over the entire body and not only in the vessels in the brain. Various conditions may cause the vessels to dilate, and if these are in the brain a congestion headache results, which subsides as soon as the equilibrium of the circulation is restored by rest and relaxation, or by other means adopted. A little more physical exertion than usual will bring on this condition, such as running, calisthenic exercises, or an interesting sport where the excitement keeps one at the exercise without observing the approach of the symptoms. This form of congestive head-

ache is relieved by lying down, which position usually aggravates headaches of this type.

Long exposures to cold or certain physiological or functional disturbances which cause an inactive skin, such as toxic conditions and certain gland disorders, are common among the causative agencies producing a hyperemia that may result in headache.

Certain heart conditions may result in cerebral congestion and headache. A very marked enlargement of the heart may cause headache, with sensation of fullness, ringing in the ears, flashes before the eyes, restlessness, irritability and disturbed sleep, in addition to distress about the heart. The headache is usually more or less throbbing in character. Except in the stage of compensatory enlargement leaking heart valves do not cause congestive headache; when the compensation breaks, any resulting headache is apt to be due to passive congestion, or possibly to cerebral anemia.

Passive Cerebral Hyperemia or Congestion. This form of congestion is usually chronic, but occasionally it may be acute. It results from some condition which prevents the return flow of blood from the brain through the veins. As stated immediately above, chronic heart

disease may cause cerebral congestion, either from the congestion of the heart itself or the resulting congestion of the lungs; because of the obstruction to the return circulation, disease of the right side of the heart causes greater congestion than a similar disease of the left heart. Cerebral congestion may follow lung congestion from any cause—asthma, emphysema, effusions into the pleura (the lung coverings); also violent strainings, as in constipation, in the cough of whooping cough, and severe bronchial, laryngeal and pharyngeal irritations, especially chronic bronchitis. Tumors and swellings of the neck, as goitre, may press upon the jugular veins and cause congestion. Sudden suppression of the menstrual flow at any time but especially at the menopause may be a cause, through closure of the regular and habitual outlet for the blood. Occasionally worry and anxiety, various excesses, including mental and physical overactivity, irregular living, etc., and tight collars and abnormal backward positions of the head may cause congestion and headache.

The pain of passive congestion is dull, and accompanied by fullness and heaviness in the head. The face and ears show congestion and

may be bluish. The symptoms are aggravated by any activity, coughing and sneezing, stooping, and straining at stool, and excitement.

Active or passive *partial hyperemia* of the brain may result from local interference with the circulation, by diseases of some of the vessels, tumors in certain locations, or structural changes in the tissues of the brain. If there are headaches they are circumscribed in location, and one or both eyes or ears may be affected. This is a rare condition.

Arteriosclerosis or Angiosclerosis. This is a well known condition of hardening of the arteries. Arteriosclerosis is considered by some authorities to be as natural to old age as are "gray hair and failing eyesight," as a result of "ordinary wear and tear of life" (Osler). There may be, naturally, some loss of elasticity, but I cannot accept the belief that a degree of hardening pronounced enough to come under the class of arteriosclerosis is at all natural; some centenarians have been known to have perfectly normal blood vessels.

The more likely causes, in practically all cases, are the toxic conditions caused by excessive food, defective elimination, deficient or excessive physical activity, gout and rheuma-

tism and Bright's disease, alcohol, syphilis and lead poisoning; also abuse of tobacco, tea and coffee, frequent and extreme outbursts of anger; or any other influence causing a marked or steady increase in the force and frequency of the heart beat, as great emotional stress especially among stage and pulpit and platform folk. This increased pressure, unguarded, would bring about dilation of the vessels and possibly rupture under strain, but Nature thickens the arterial walls to protect against this very pressure. Though this thickening is a protective measure, it may become in time too great for the health of the blood vessels.

The cerebral arteries are usually the first ones to become affected by the sclerosis. This causes defective brain circulation, with a dull and heavy or a fearfully sharp and acute throbbing headache—"as if a nail were being driven into it;" dizziness, head noises, and failure of mental acuteness are other symptoms, and the pulse is full and hard. The symptoms are frequently those of severe cerebral anemia, from poor brain nourishment. There are sometimes occasional transitory paralyses, depending upon which portions of the brain are

directly affected—probably by minute ruptures of the vessels.

Usually in this type there is one form of Bright's disease and the arteriosclerosis may, in fact, be due to the kidney trouble, which causes a rise in blood pressure. Apoplexy almost invariably results from some special stress, as by a hearty meal, mental or physical effort, etc., when the arteries are already hardened and made brittle to the breaking point. But when apoplexy—"a stroke"—has come upon one the condition is then an organic change in the brain.

CHAPTER VII

Headaches of Nervous Disorders

HEADACHES are frequently caused by or associated with various nervous and neurotic states, though it is evident that other conditions are sometimes partly responsible, as anemia, vasomotor disturbances, etc. Because neurasthenics and neurotics and many of those of nervous temperament are easily disturbed by any abnormal functioning, it is frequently difficult to determine the degree of pain in their headaches; it is probable that the high degree of pain complained of by some would cause little or no discomfort in others. But, just because these individuals are what they are, in a nervous, mental, and temperamental way, it would be an injustice to say that many of them do not suffer extreme distress.

The Headache of Neurasthenia *(Nervous Prostration or Nervous Exhaustion).* This is perhaps the most common of all headaches except migraine, though not all individuals

with neurasthenia have headaches. This type of headache is by no means the sole privilege of neurasthenics, for it may visit any one who becomes temporarily mentally exhausted. The headaches are quite varied as to location and character; sometimes the entire head or back of the head may be involved but usually it is the front of the head, and perhaps the eyes; sometimes the pain is in temples. But the peculiarity of these headaches is that the disturbance is not really a pain, but an oppression —a feeling of constriction, as if a large band of rubber were about the head; or it may be a circle, a square, a point, a line, or any other kind of a geometrical figure, outlined by the pain or uncomfortable sensation. In some it is merely a sensation of fulness, as of outward pressure against the skull. Some complain of brain numbness, others of pressure or weight upon the brain; some have described the sensation to be as if a small chain or beaded cord were being drawn through certain regions of the brain, and still others say there is a feeling as of water moving or falling, or bubbles foaming and bursting. The brain feels "on fire" in some instances. Frequently there is a boring pain, and sometimes patients have com-

plained of the sensation of a hot rod being passed through certain portions of the brain, and shooting pains are commonly experienced. Most of these pains are worse after great emotional stress or worries and cares and when one has had to work against inclination.

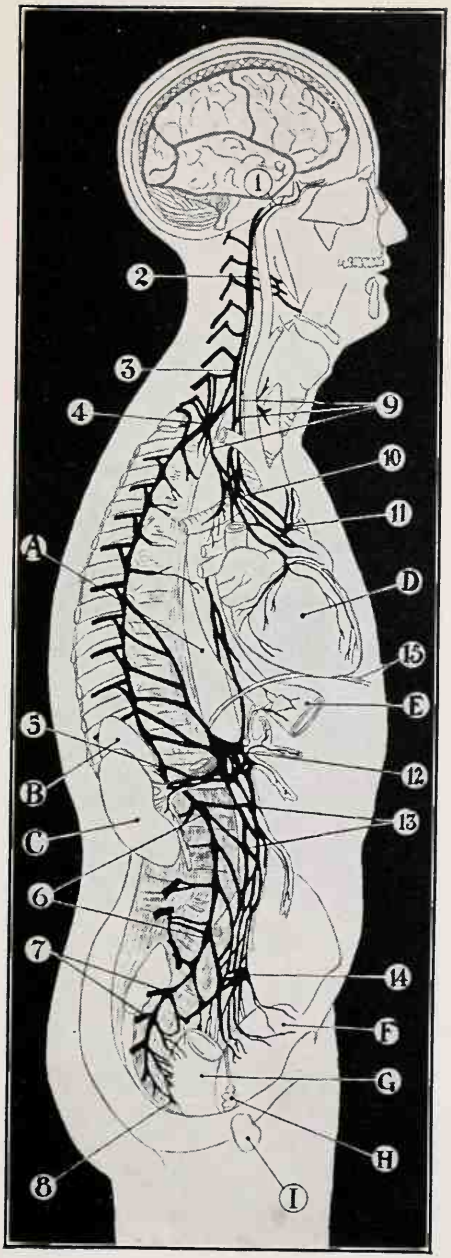
Because of the underlying neurotic base in these, they are the cases that try the patience of the physician, for on different days he will be confronted with headaches of different types and degrees. Very frequently the first thought of these patients on awaking in the morning is the headache, and it is common for them to search through all available books to find suitable terms in which to describe their symptoms and the sensations within their heads—and throughout their bodies as well. They are introspective to an excessively abnormal degree.

Together with the headache or head symptoms there are depression of spirits, fatigue upon or lack of ability for mental concentration, sleeplessness or disturbed or unrefreshing sleep, dizziness, a sullen, moody and irascible temper, and morbid forbodings and fears, as of impending insanity or of brain tumors, etc. There may be specks before the eyes, and slight ear noises. Every symptom

may be greatly aggravated by the patient's own concentration upon them, and by physical fatigue and mental effort. They are less pronounced (if the patient will admit it) upon rest and cheerfulness or at least in cheerful surroundings.

Traumatic Neurasthenia *(Traumatic Hysteria).* Either following actual physical injury (possibly insignificant) or a mental shock there may be definite neurasthenic symptoms—physical and mental tiredness, headache, melancholia, digestive disturbances and loss of weight. To these may be added hysterical symptoms. The condition usually develops weeks after the slight injury or severe mental shock, and is in some cases called "railway spine," or "railway brain"—because it is quite frequent for the condition to be the result of a railway accident.

Epilepsy. Attacks of epilepsy come on with such suddenness that usually a headache cannot develop before the seizure, though infrequently there is a slight disturbing head sensation some time before the aura, which the patient has learned is indicative of an approaching "spell." But quite frequently in major epilepsy there is a severe headache over



1, Carotid plexus; 2, 3 and 4, superior, middle and inferior cervical ganglia; 5, twelfth thoracic ganglion; (the other eleven begin immediately below 4 and extend to 12, along the spine); 6, lumbar ganglia; 7, sacral ganglia; 8, ganglion impar; 9, cardiac branches; 10, and 11, deep and superficial cardiac plexuses; 12, solar plexus; 13, aortic plexus; 14, hypogastric plexus; 15, diaphragm. **A**, aorta; **B**, suprarenal gland; **C**, kidney; **D**, heart; **E**, esophagus; **F**, bladder; **G**, rectum; **H**, seminal vesicles; **I**, location of prostate.

The Nerve System in Relation to Body Organs

the entire head following a seizure; this may last but a few hours, but it may last for several days. Sometimes epileptics have their spells at night only and occasionally their affliction is not known, even to themselves, for years, and the headache present on awaking may be the occasion for much speculation before the true cause is determined. But when it is associated with stiffness and aching of the muscles and with a bitten tongue or cheek the diagnosis is quite definitely established. When the attacks are in the daytime or known to be at night the headaches are readily understood. What causes the head pains is not definitely known, but it is likely that there is a certain amount of cerebral congestion—probably in addition to some particular irritative pathological condition of the brain.

Trifacial Neuralgia. The trifacial nerve has three main divisions which pass from within the brain to supply the skin and structures of the face, tongue and teeth. The question of the causation of neuralgia is still in dispute, but there is a considerable degree of toxemia in most cases, together with excessive mental or physical activity, exposure, etc., probably "nerve starvation." While neuralgia of this

nerve is not in itself a headache, there is at times such a general spread of the neuralgia that it is interpreted as a headache, and in some cases there seems to be an actual headache, which may, however, be merely associated with the neuralgia. Usually the scalp and frequently the skin over the temples are tender to the touch. The headache or the neuralgia is usualy paroxysmal.

Neuralgia of the Scalp is known to most people. It is not a definite headache usually, though sometimes it seems to involve the entire thickness of the scalp and becomes, in effect at least, a genuine headache. Many people have it quite frequently when they wash their hair and scalp, and especially if for any reason they part their hair in a different place, comb it in a different direction, or dress it in a different manner; some men have it after a visit to the barber. Sometimes an attack results from exposing any part of the body to cold and dampness, especially the latter. Bathing the hands in cold water, or washing clothes may be followed by a siege of it. But one of the most frequent causes is sexual over indulgence or abnormal sexual practices, also prostatic irritation from old gonorrheal in-

fection or other cause, or uterine irritations. From these latter causes the neuralgia is usually at the vertex (crown), while from the other causes it is more apt to be general, or at least over a larger area of the vertex. Mere touching of the scalp or even of the hair causes great aggravation of the pain, and combing the hair is sometimes impossible. Those of the neurasthenic, neurotic and hysteric tendencies are more likely to be disturbed by this affection—which may also be associated with a clearcut headache. There is also found occasionally a supraorbital and occipital neuralgia, but these are not genuine headaches.

Mental Overexertion. We have already seen, under the discussion of Congestive Headache, that overactivity of the mind will or may result in headache, especially in the neurasthenic, those below normal nerve and vasomotor tone, the anemic, plethoric and arteriosclerotic. When the mental processes are urged to prolonged and concentrated effort with little or no relaxation, there may result an exhaustion of the cerebral blood vessels with their dilation and a consequent increase in blood supply. This causes, then, a congestive headache. Mental processes produce toxins, and if they

are unusually prolonged or excessive there may be added to the congestive headache the element of toxemic headache. If one is easily exhausted by mental strain, chronically or temporarily, there may be a rapid draining of the brain after lessening the strain, with the production of an anemic headache. The lack of physical exercise and fresh air may cause the anemic headache in mental workers.

Emotions. Who has not seen some person become more or less physically incapacitated following a "tantrum"? Anger, perhaps worst of all emotions from harmful effects produced, raises the blood pressure and increases the force and frequency of the heart beat, and there will often be a severe headache following an outbreak. Besides the effect upon the circulation, this emotion seems to pour into the blood stream a direct poison, adding to the headache the element of toxemia which aggravates and intensifies the pain. I have seen severe general symptoms, that lasted for several days, resulting from violent rage. Worry, anxiety and grief also poison the body, but to a less degree; nevertheless these are frequently the cause of headache, and that resulting from grief may be rather severe. Joy, especially

sudden and surprising joy, and particularly in those of the nervous type, is just as capable of producing similar disturbances. These headaches are usually of the congestive type, that of anger being intensely throbbing, perhaps "splitting." The extremes of joy and mirth may produce headache of the same character.

CHAPTER VIII

Headaches of Various Disorders
(As Effect or Association)

EYE Inflammations and Irritations. There are various disorders of the eyes that may lead to headache. *Conjunctivitis,* or inflammation of the membranes lining the eyelids and covering the eyeballs is usually unassociated with headache, but there may be this symptom in severe cases from the marked congestion and the disturbance produced by light. *Iritis* is an inflammation of the colored portion of the eye. In acute iritis there may be pain of the utmost severity in the eye and also over the forehead, temple and cheek of the affected side or sides. The pain is sharp, stabbing and constant. The iris is cloudy, the pupil contracted, the vision disturbed. In some of the slowly developing or chronic forms there may be no pain; in others it is usually absent but may be severe, and with it the headache as described. *Keratitis,* or inflammation of the middle, vascular coat of the eyeball, usually

causes no headache, but sometimes the pain in the eye may be so extreme as to seem to involve the front of the head, and there is probably a definite headache in some cases. *Glaucoma* is a condition of great increase in pressure within the eyeball. In the acute inflammatory form there is an extremely severe pain radiating from the eye through the head, from the pressure and direct inflammation or pressure upon the nerves.

Ear Inflammations and Irritations. *Impacted wax* in the external ear has been known to cause a dull headache. *Inflammation of the Middle Ear* may be catarrhal or purulent, either of which may be acute or chronic. There is quite frequently a headache in the temporal region or back of the ear. The pain may extend upward toward the top of the head. *Mastoid abscess* may follow middle-ear disease of an acute purulent form. There is apt to be severe pain in the mastoid region and internal ear and an equally severe one-sided headache. Both pains are gradual in onset in chronic mastoid trouble, but quite abrupt in the acute.

Nasopharyngeal. The nasopharynx is that part of the pharynx above the soft palate, but

as used here the term means both this region and the nose. There are several abnormal conditions of this region that may give rise to headaches; some of them may cause mouth-breathing, and headache is a frequent symptom of this physiological defect. Among the direct causes of headache or of mouth-breathing are *adenoids* and *polypus; deviated septum* or *septal spurs; inflammations,* congestions or abnormal structural conditions in the bones back of the nose, and *adhesions* within the nose.

Disorders of the Accessory Nasal Sinuses. Connected with the inner surfaces of the nose are several sinuses or cavities: the frontal sinus, large air cells above each eye; ethmoidal cells, air cells in the ethmoid bone back of the nose and at the base of the brain; sphenoidal sinus, a similar cavity in the sphenoid bone, in the general location of the ethmoid; maxillary sinus, the cavity in each of the cheek bones. Congestions and inflammations and especially pus inflammations in any of these sinuses may be responsible for headache, though disease of the maxillary sinus is less likely to cause this symptom than similar disease in the others.

Teeth. Abscesses and caries of the upper

teeth may cause headache through irritation "backtracking" over the nerves of the face to the head, or by causing an inflammation of the maxillary sinus. In some instances pyorrhea is the cause of such irritation to the nerves of the teeth that, with the usually associated pus condition, headache may result.

REFLEX OR SYMPATHETIC HEADACHES
(Sometimes Called Symptomatic)

Eyestrain. Some authorities include eyestrain among the direct causes of headache. While this condition is frequently the (exciting) cause of headache, I believe that headache from straining to correct refractive errors or eye muscle defects is usually reflexly rather than directly produced. *Astigmatism* is the most common cause of headache resulting from refractive errors, *but near-sightedness* is also a frequent cause; far-sightedness is less apt to cause the disturbance, but a combination of astigmatism and far-sightedness is a frequent cause. The pain is usually above the eyes, and is aggravated by use of the eyes; and the pain may continue for hours after the strain has been removed. *Asthenopia,* a condition of general weakness of the eyes, is also a frequent

cause of headache. Those with asthenopia who sew or read or otherwise use their eyes for close or exacting work at dusk or in other poor light, especially poor artificial light, are quite often victims of more or less severe headache from the eyestrain. Various other nervous and general symptoms may be caused by the eyestrain, along with headache.

Nasal. One of the numerous symptoms of *hay fever* is a very severe headache gradually increasing in intensity until it is much like neuralgia of the head. Ordinarily the headache does not appear until after several severe "explosions," and may be due reflexly to the marked irritation of the nasal mucous membrane, to the altered metabolism or toxemia, or there may be some intercurrent sinus trouble or septal spurs, etc., which may be partly or largely responsible for the hay fever.

Gastric. Headache is a frequent symptom of gastric disorders, as a result of toxemia or anemia or some physical or chemical condition produced; but it may also be reflex through irritation of the solar plexus and the pneumogastric or vagus nerve from the head to some of the vital organs. This irritation may be caused by decomposing or fermenting

foods, gastric distention or gastroptosis. Hunger sometimes produces headache, usually from irritation or slightly inflamed or congested stomach caused by previous excess of food or other dietetic errors. Many people have never known a normal hunger since their childhood.

When food or coffee or any other stimulant relieves a headache resulting from abstinence from food or missing a usual stimulant, it secures the relief by stimulating the circulation sufficiently to reabsorb into the circulation the toxins that were temporarily deposited in the tissues during the period of slowered circulation. A headache produced from abstinence from food or stimulants will pass off within forty-eight to seventy-two hours of continued abstinence in practically every instance, disproving the theory of some that such headache is the result of impoverishment of the blood.

Sexual. It is a common experience with some women who have pelvic disorders to have headache along with their other symptoms. Though this symptom may sometimes be merely an associate symptom of the general neurasthenic condition, yet there is a marked

tendency to reflex headache in some of these pelvic disorders.

Prolapsus and *displacements* exert a pulling upon the supporting ligaments and upon the nerves, which causes reflex disturbance of the pelvic plexus of nerves and through this the entire sympathetic and general nervous systems. The same may be said of the heavy uterus of *sub-involution*—when the organ does not return to normal size following childbirth or abortion or miscarriage. *Inflammation* of the uterus and pelvic *cellulitis* may cause such direct local irritation of the local nerves as to produce a reflex headache.

In *dysmenorrhea* or painful menstruation, *menorrhagia* (excessive flowing during periods) there is quite frequently a more or less pronounced headache. There may be disease of the lining membrane of the uterus or of the cervix, pin-mouth cervix, undeveloped uterus, etc., and certainly these are sufficient cause for general disturbance of the nervous system, especially in nervous women and girls. While headache is sometimes attributed to *leucorrhea* I am convinced that it is merely the result of the marked toxemia and pelvic congestion that gives rise to the leucor-

rhea. *Amenorrhea,* or absence or stopping of the menstrual flow, may be due to anemia, tuberculosis, obesity, fear and worry, imperfect sexual development, or other causes, most of which conditions may themselves cause a headache, directly and not reflexly. But where the stopping is sudden there may be decided local irritations or congestions sufficient to result in reflex headache; or, as is frequently the case, there is a congestive headache, from the sudden closure of the outlet for the blood, and the blood pressure increases.

There are so many symptoms of the *menopause* when this condition has not been prepared for correctly that it is not to be wondered at that there is a headache in many women at this time of life. When the menopause takes place in a highly toxic woman and the woman who has already had considerable pelvic trouble, also where it comes on rather abruptly, there may be fairly extreme symptoms. The headache may be early or late, and slight and insignificant or at times it may be violent, especially in the nervous and hysterical and the "full-blooded" woman. Sometimes it is a toxic one, sometimes congestive, at other times reflex, and quite frequently a combina-

tion of all of them. *Ovarian disease* may also cause reflex headache, either general over the head or of a neuralgic nature with tenderness of the scalp.

The occasional headache resulting from *prolonged lactation* (nursing) may sometimes be reflex, though it is usually indirectly produced by the anemia and general exhaustion that frequently result from nursing when the physical condition was below par to begin with; it may also cause an internal secretion disturbance that may produce the headache.

Disturbances of the male sexual organs are not so apt to cause headache, except in the nervous and neurasthenic individuals, in whom *prostatic enlargement or inflammation* may produce a pain in the top of the head, with sensitiveness of the scalp, though sometimes the headache is general. In others it is apt to be of the neurasthenic type. *Prostatorrhea* and *varicocele* may cause headache reflexly or from the general exhaustion, or the worry concerning thm may cause the sympton. *Sexual excesses* and frequent *seminal emissions* may produce an exhaustion headache, though these are usually from anemia and the draining of the system of its necessary internal secretions

of certain organs. Sometimes in these cases there may be a congestive headache from the lowered vasomotor control, in which the blood vessels are easily dilated by physical or mental exertion, by stooping, straining at stool, etc. There is usually no element of the reflex headache in this particular group of sexual troubles, some of which may exist in women as well as in men.

CHAPTER IX

Organic Headaches

(Due to Structural Change)

IN all inflammatory conditions involving the exterior or interior of the skull headache is a prominent symptom. Thus, in inflammation of bone, especially of the bones within the skull, of the lining membranes of the bones, of the coverings of the brain, of the cavities of the skull, and of the brain substance itself, headache may be found, probably as the most disturbing symptom. While many of the headaches previously described may be relieved by oneself but may require medical assistance, these organic headaches should be under medical care in every instance.

Vascular Disease. Disease of the blood vessels of the brain occurs normally to a certain degree in old age; it also occurs frequently in syphilis, rheumatism and gout, alcoholism, and chronic kidney disease. The sclerotic type of vascular disease is for the most part described under arteriosclerosis; it produces headache

by reducing the nourishment of the brain and cerebral structures. Syphilis alters the blood vessels also, but in addition it causes inflammation of the brain coverings, and tumors called gummata (single tumor, gumma). These headaches vary in intensity and at times may be insignificant or they may even disappear for varying lengths of time though they are frequently extremely severe. Unless by some method almost miraculous in its effect they cannot be greatly corrected or relieved.

Apoplexy. A "stroke" is usually due to the rupture of a diseased and weakened blood vessel in the brain and gives rise to unconsciousness and muscular paralyses. In a sudden attack the unconsciousness comes on too suddenly for a headache to develop; but cerebral congestion may exist for some hours or days before an attack, with dull headache, dizziness, disturbed sleep, ringing in the ears, and probably numbness on the side that is later affected. It may result from any arterial disease mentioned above. While it has been said that heredity has some influence in this, I claim that the influence of "heredity" is in supplying the same table and the same degen-

erating habits to the several members of the same family.

During the time of congestive headaches the causative conditions may be reduced and the headaches relieved if proper steps are taken to eliminate toxic conditions and feed well below body requirements; or if there has been one or more strokes further ones may be avoided by such measures. After a stroke there may be a dull general or local headache, which may be of short or long duration, depending upon whether the clot of blood is absorbed quickly or slowly or fails to be absorbed.

Blood Tumor of Brain Coverings. Sometimes new tissue develops on the inner surface of the outer brain covering, especially in some prolonged illness with malnutrition or arteriosclerosis, as tuberculosis and Bright's disease and alcoholism. Chronically malnourished children sometimes have it. The most usual cause, however, is some chronic form of insanity. Small or large hemorrhages may occur from this new tissue, the latter being called "hematoma of the dura mater" (a blood tumor of the outer brain coverings). The condition and the resulting headache are

practically incurable except by surgery, but the headaches vary in intensity and frequency, there being in some cases no headache whatever during the gradually increasing condition.

Cerebral Thrombosis. This is a plugging of a blood vessel by a thrombus or plug formed in the vessel, from a diseased vessel (sclerosed or syphilitic), an aneurysm or sac formed by dilation of the arterial wall, or from an abnormal condition of the blood. It usually develops more or less gradually, producing headache, dizziness, disturbance of speech, tingling of fingers or toes, or weakness of one side; later the symptoms may be those of cerebral hemorrhage, with convulsions, coma and paralysis. There may be slight or complete absorption of the plug with lessening or removal of the symptoms.

Sinus Thrombosis. In the head are numerous sinuses that take the place of veins. They are crevices in the brain coverings or folds in the brain, covered over with membranes that make complete channels, in which a thrombus may form from disease of the vessels or by extension from adjacent structures. The vessels may be diseased in malnourished

infants and those with diarrhea, in anemia and green sickness, tuberculosis, syphilis, cancer, etc., or by injury. Extension may be from middle-ear disease, mastoiditis, facial carbuncle and erysipelas, pus in nasal sinuses, skull fractures, etc. Headache may occur in either form, other symptoms being similar to those of arterial thrombosis. Proper treatment, perhaps surgery, may correct the trouble sometimes.

Mastoid Disease. This is a dangerous affection, since the infection may spread rapidly and extensively to other areas. Headache is a common symptom, and is on the side of the affected mastoid (the bony prominence back of the ear). The pain may radiate over the entire side of the head, but as the nerves become gradually dulled by the inflammation the headache may diminish and finally disappear. Disease of the middle ear is usually the starting point of mastoid disease. The treatment is usually surgical, though some osteopaths have been able to devise a finger treatment that greatly reduces the condition and in numerous cases they have been able to drain the middle ear and bring about complete correction of the mastoid trouble. Absolute rest, the absolute

fast, increased bowel activity, and an ice-cap over a wet cloth over the mastoid area may gradually bring about reduction of all symptoms.

Disease of the Frontal Sinus. This may be catarrhal or purulent. The headache is usually just back of the forehead, but it may be general. For a while it comes and goes—a dull ache gradually increasing until it becomes severe and continual. The forehead is frequently swollen and sensitive to touch. Detoxicating treatment will prevent serious development, but after such development surgery may be necessary to save the patient's life.

Cerebral Abscess. Brain abscess usually develops from middle-ear disease. The pain of abscess is one of the most severe of all head pains, and begins early and is quite constant. Sometimes it is less severe, dull, and localized in the region of the abscess; but as the abscess develops the pain increases until it is torture. Increase in circulation or blood pressure, or constriction about the neck or elsewhere to lessen the venous return flow from the head intensifies the headache. If due to ear disease the ache is usually on that side, but may be

general; if in the hindbrain the ache is usually in the back of the head, but may be associated with or begin with pain in the forehead. Fever and vomiting usually develop. An operation is usually necessary in these cases.

Syphilis of the Brain. In many cases syphilis leads to inflammation of some of the cerebral structures, with symptoms not unlike those of cerebral tumor. Headache is one of the earliest and most invariable symptoms, and reaches an unbearable intensity. It is worse at night, and very frequently prevents sleep. The headache usually involves the entire head, and in addition to it there are other grave symptoms: vomiting, eye defects, paralyses, drowsiness or stupor, mental dullness, and change of character. No treatment will give permanent relief when this stage of syphilis has developed, but certain drug treatment may allay symptoms for a time.

Tumors of the Brain. In this condition headache may be absent, but it is usually present in marked form—in fact it is the most intense of all headaches, is usually constant, and varies less than other headaches in degree. The constancy and intensity of this headache has led to some cases of suicide, es-

pecially after it has prevented sleep for long periods of time. Usually the headache is general, but is sometimes more or less local. Anything increasing brain circulation aggravates the pain, as coughing, sneezing, straining at stool, bending over, mental effort and particularly physical effort, etc. The usual symptoms of brain involvement are present—optic neuritis, dizziness, vomiting, etc. Results of treatment may not always be satisfactory, but one should remain hopeful and keep on trying. Sometimes the tumor can be successfully removed by surgical operation.

Inflammation of the Inner Coverings of the Brain (*Leptomeningitis*). This is always due to infection. The headache is usually constant and severe. The acute form is due to or associated with pus development, and there are also dizziness, vomiting, and contraction of the neck muscles. As the chronic form may attack either the top or under surface of the brain, the symptoms depend upon what nerves are affected. Complete rest, the fast, mild laxatives or enemas, and an ice-cap over a wet turban to the shaven head may bring about a reduction of the inflammation and of the headache.

Inflammation of the Outer Coverings of the Brain (*Pachymeningitis*). This may be due to syphilis, disease of the temporal or ethmoid bones or of the mastoid cells, or physical injury to the head. The headache is usually on the side that is affected. Sometimes this condition gives rise to epileptic attacks of a certain type—Jacksonian. Other symptoms are vomiting and fever. If the internal surface of the outer covering is involved, it is called "hematoma of the dura mater" (see Blood Tumor). The treatment given immediately above may give relief, but all these cases should be in the care of physicians.

Encephalitis. This is the result of some acute infectious disease, usually appearing between the ages of fifteen and thirty. It begins abruptly and the headache is violent, sometimes more severe in the back of the head and the neck. With it are dizziness, vomiting, general indifference and dejection, giving way to sleepiness which in turn gives way to unconsciousness. This is quite frequently overcome, but some form of paralysis may remain. The treatment just above is best, and if the patient is kept in comparative dark and com-

plete quiet the outlook is not necessarily gloomy.

Inflammation of the Cranial Bones. External inflammation of the skull bones is usually due to violent physical injury, but may be due to syphilis. Headache is common in either, and if due to syphilis is a typical syphilitic headache. The bone is sensitive and painful to touch and a mistaken diagnosis may be made of this when the headache is rheumatic. If due to injury, the same treatment briefly described under "Concussion of the Brain" will give relief, but if due to syphilis a more vigorous and direct treatment will be necessary.

Compression of the Brain. Any condition which reduces the intra-cranial space will produce compression of the brain, some conditions being sudden, others less abrupt, some slight and others extreme. Bone tumors, compression injuries, hydrocephalus and like conditions, clots and arterial dilations may cause the brain compression. In sudden compression insufficient to cause immediate death or unconsciousness there may be a severe throbbing or bursting headache, appearing early and it is steady and extremely severe. Dizziness,

disturbance of consciousness, and ultimately coma occur, other symptoms being visual disturbances, slow heart action, irregular respiration, incontinence of urine and feces, etc. Possibility of relief depends upon the cause, surgery being necessary in some cases, especially from injury and some forms of tumor.

Concussion of the Brain. This is a jarring of the brain, by direct or indirect force. There is derangement of consciousness, slight or profound, brief or for days or even weeks. Nausea and vomiting occur when consciousness is not lost, but may give way to an extreme headache. In more serious cases there is muscular relaxation, marked depression, cold clammy sweat, rapid and weak pulse, and sometimes lost control of bowels and bladder. This stage gives way to nausea and vomiting, dizziness and irritability, with severe headache, which may remain for many weeks. Severe cases should have medical attention at once; in milder cases the patient should be kept quiet and in comparative darkness and given the treatment mentioned under "Leptomeningitis." Physical and mental overexertion and emotional excitement must be guarded against for a long time after such an injury.

Hydrocephalus. Though this is usually a condition of infancy, sometimes there is a delayed form, or what is sometimes called a concealed hydrocephalus—after the bones of the head have united and set, thus preventing the usual head enlargement. These older cases are usually from earlier arrested cases, or some form of meningitis. Headache, vomiting and optic neuritis are quite constant symptoms—much like those of brain tumor. The headache may be paroxysmal. Treatment is unsatisfactory, but some relief may be obtained by depleting the system of excess nourishment and fluid. Puncture of the spinal cord should not be allowed, or at least only in rare cases.

Softening of the Brain. It is doubtful if the actual process of brain softening causes headache, but rather that the conditions causing the softening are the causes of the headache. Among these are arteriosclerosis, thrombosis, syphilis of the arteries, etc. Slow and progressive softening without material change in the blood vessels may be caused by certain types of poisons, as carbon monoxide, phosphorus, and others. As the headache is entirely symptomatic it will or will not respond

to treatment according as the cause responds or fails to respond.

Acromegaly. This comparatively rare nutritional disease is quite definitely ascribed to failure of function of one of the internal secretory glands—the pituitary, at the base of the brain. Women are affected more often than men. The bones of the head and face, especially the lower jaw, are enlarged, also the tongue, lips, and muscles of the extremities, also the fingers and toes, especially in breadth. Besides a persistent or intermittent headache of one side or front or back, there may be disturbed vision and hearing, increased amounts of urine that may contain sugar and loss of sexual power, etc. Internal secretion treatment under medical supervision offers some ray of hope, especially if begun early.

Inflammatory Destruction of the Cervical Vertebræ. This is usually tubercular. Abscesses and contractions and curvatures are common, though cervical curvature is necessarily limited, but traction of the head to one side is common. When the upper neck vertebræ are involved the headache is posterior, frequently extending to the sides and top, and is aggravated by pressure and muscular con-

traction. The condition may be arrested, with fixed position of the affected vertebræ, but expert medical or surgical attention is required.

Multiple Sclerosis *(Disseminated Sclerosis).* This is a chronic disease marked by scattered patches of hardening in the brain and spinal cord. Injury, syphilis, acute infectious diseases, and poisoning by certain poisons may be the start, though the exact cause is not known. It occurs usually between fifteen and thirty-five years of age, most frequently in women, and may last for from one to twenty years, with occasional periods of apparent improvement. Headache and numerous other nervous symptoms are common. Rest is extremely important, and one should "live as if he were an old man," free from excitement and in physical, mental and sexual ease, with a nourishing, natural food diet, with re-educational exercises and tepid baths.

CHAPTER X

General Diagnosis

EXCEPT for a few conditions that occasionally may be misinterpreted as headache, a person does not require a diagnosis of headache to determine what he has, though it is sometimes rather difficult to determine the exact *cause* of the headache. In order that the quickest relief may be afforded, when relief is possible, it is well to determine the cause as soon as possible; for, as headache itself is but a symptom of some condition acting as a cause for other symptoms as well, it will do little good, in most cases, to work toward relief of the headache alone; and since corrective treatment for one type of headache (as the anemic) may aggravate another type (as the hyperemic) it is well to know with which type one has to deal. It is also necessary to determine, if possible and as soon as possible, whether one is dealing with a responsive headache of a functional nature or a stubborn or non-yielding

one due to organic change of some of the structures within the cranium.

Not infrequently it requires a complete physical inventory and a recount of various conditions and a consideration of all associated symptoms for the patient or a skilled physician to be able to determine the cause—and sometimes it is impossible even then. This will be understood when a review is made of the many conditions in which headache may be found, in some merely as an associate of other symptoms, in others as a definite guide-post as to the nature of the causative condition.

There are certain associated symptoms and conditions which may be relied upon quite definitely in the determination of organic conditions causing headaches. The headaches themselves are quite constant and there are frequently some tremors or contractions or paralyses of some of the muscles. Where such a persistent headache is associated with vomiting, especially the projectile type of vomiting, and where there is neuritis of the optic nerve, and immobility of the pupils when in light and darkness, the diagnosis can safely be made positive for some organic conditions.

The pupils may be further used to aid in

diagnosis, as they are usually found contracted when there is a congestive headache and dilated when the headache is of the anemic type, and yet in either condition they will to some degree react to varying light conditions.

Too much reliance should not be placed upon the location of the head pains as determining the cause of the pains, for headaches from any cause may vary considerably in location, character and degree; but without doubt the location very frequently points more clearly to certain conditions than to others. For instance, *frontal headaches* are usually due to one or more of the following conditions: eyestrain, frontal sinus obstruction and infection, iritis, glaucoma, adenoids, thrombosis of the superior longitudinal sinus, periostitis of cranial bones, trifacial neuralgia, neurasthenia, anemia, early stages of acute fevers, typhoid, syphilitic nodes, hematoma of the dura, uremia, lithemia, gastritis, and malaria.

Pains on *top of the head* are most apt to be due to hysteria, neurasthenia, prostatic disease, uterine or other pelvic disease, epilepsy, anemia, chlorosis, and constipation.

Pains at the *back of the head* are usually due to cerebellar tumors, pharyngitis, sphe-

noidal disease, constipation, kidney disease, eyestrain, asthenopia, neurasthenia, cerebro-spinal meningitis, adenoids, epilepsy, diabetes, gout, locomotor ataxia, rheumatism, uterine disease, syphilis, and cancer of the base of the tongue.

One-sided headaches are most frequently due to migraine, otitis media, mastoid abscess, abscess of the cheek bone or diseased bone on one side, one-sided eyestrain, trifacial neuralgia, caries of the teeth, hysteria, wax in the ear, nasal polypus, dysmenorrhea, gout, chronic nephritis, lithemia, and cerebellar tumor.

Keeping in mind that pains of syphilis are often worse at night, any headache may, with considerable certainty, be considered as due to syphilis when it appears with little or no relief for days at a time and is marked by aggravations at night, especially if a history of previous syphilitic infection can be elicited.

But numerous other conditions must be taken into consideration also. Headaches causing or associated with *restlessness during the day* are frequently due to hyperemia of the brain, arteriosclerosis, impending apoplexy, chronic alcoholism, simple meningitis, and tapeworm. Those that interfere with sleep or

cause *insomnia* are due to severe anemia, cerebral congestion, arteriosclerosis, constipation, mental strain, physical exhaustion, highly aroused emotions, dyspepsia, chronic gastritis and flatulence, gout, neurasthenia, and sexual exhaustion.

In *night terrors* one should suspect adenoids and enlarged tonsils, worms, epilepsy, indigestion, hysteria, or lithemia. With *nightmare* and sudden jerkings, suspect brain congestion, heart enlargement or leaky valves, worms, adenoids and enlarged tonsils, meningitis, early encephalitis, mental and physical exhaustion, neurasthenia, or minute cerebral emboli; or consider the night meal, which was probably large or indigestible.

When *drowsiness* and mental sluggishness are associated with headache consider anemia, brain inflammation, abscess or softening, embolism, hematoma of dura, epilepsy (second stage), extreme arteriosclerosis when rupture is impending or when minute hemorrhages take place. If worse after meals it may be due to lithemia, if marked in the daytime it may be due to decided dilation of the heart.

An *active life* with exposure is more apt than inactive life to give rise to rheumatism;

while *sedentary life* is more likely to result in anemia, chlorosis, tubercolosis, arteriosclerosis, constipation, gout, obesity, gastritis, dyspepsia, hysteria, and hypochondria—and headache may be a symptom of any of these conditions.

When there is marked increase of *thirst,* look for diabetes, acute or chronic gastritis, hemorrhage, kidney disease, sunstroke, gout, fever diseases, arsenic poisoning, hysteria, or profuse sweating or diarrhea.

If the headache *begins suddenly,* look for some of the diseases that begin suddenly, or have sudden attacks, as all acute fever diseases, including glandular fever and influenza, epileptic seizures, neuralgia, angina pectoris, or cerebral apoplexy, embolism or thrombosis. If it *begins gradually,* consider the chronic and degenerative diseases, and aneurysms, mastoiditis, dilation and prolapse of the stomach, enteroptosis, pernicious anemia, tuberculosis, disseminated sclerosis, and tumors of the brain.

Men are more liable than women to certain conditions that produce headache, as diabetes, valvular heart disease or heart enlargement, alcoholism, inflammation of the outer membrane covering the brain, syphilitic gumma, hemorrhage into the cord, hemophilia, and

leukemia. On the other hand, *women* are more subject to anemia, hysteria, prolapse of abdominal organs, goitre and exophthalmic goitre, disseminated sclerosis, and extreme constipation. *Children* are more subject to the acute infectious diseases, glandular fever, adenoids and enlarged tonsils, nasal polypi, foreign bodies in the nose and ear, tapeworms, delayed tooth eruption, head injury, tuberculous meningitis, bronchitis, whooping cough, infantile paralysis, spasmodic laryngitis, and rickets. In *adolescence* we quite frequently find, as common causes of headaches, anemia, chlorosis, tuberculosis, rhinitis, eruptive fevers, endocarditis, hysteria, brain concussion, simple meningitis, epilepsy, acute rheumatism, goitre and exophthalmic goitre, spinal apoplexy, and cerebral embolism.

In *early maturity* or young adult life there may be several of the causes already enumerated, but among quite frequent causes are anemia, hysteria, neurasthenia, acute and chronic tuberculosis, acute rheumatism, cerebral abscess and embolism, and disseminated sclerosis, also sexual excesses or debauchery, with sexual exhaustion.

In *middle life* we find a long list of causes of

headache. Among these may be mentioned the various organic cerebral or cranial conditions, rheumatism, gout, hypochondria, leukemia, chronic nephritis and liver disorders, trifacial neuralgia, pernicious anemia, neurasthenia, diabetes, alcoholism, disseminated sclerosis, spinal meningeal hemorrhage, cerebral thrombosis, embolism or abscess, brain or intracranial tumors, and some of the causes of reflex headaches, especially sexual disorders.

Causes that bring on headache in *late life* are arteriosclerosis, pachymeningitis, and prostatic enlargement. Conditions that may act as causes either in middle life or old age are aneurysm, angina pectoris, apoplexy, arteriosclerosis, cerebral thrombosis, and exophthalmic goitre in men.

During the *menopause* there may be uterine and pelvic congestions, inflammations and displacements, also diabetes, exophthalmic goitre, goitre, gout, hysteria, and melancholia. Some of the causative conditions are not subject to any period and the headaches may, of course, develop at any age, with the condition causing them.

Naturally, some definite abnormal condition will suggest the cause of headache, es-

pecially rheumatism, gout, diabetes, heart afflictions, alcoholism, epilepsy, anemia, arteriosclerosis, apoplexy, neurasthenia, hysteria, and nasal, sinus and ear troubles, perhaps also pelvic abnormalities. The acute diseases usually start with other symptoms in addition to the headache, and the combination of these may denote the specific illness. Especially when there is an epidemic of an acute illness and particularly smallpox and influenza, the onset of headache of the congestive type (throbbing, pulsating), and more especially if the person has been exposed to the disease, steps should be taken at once to prevent the disease from progressing in characteristic form, since it may be concluded that this disease is on its way to development.

If one has been exposed by *occupation* to any of the chemicals or gases or fumes that give rise to headache it will usually be easy to determine the cause of the headache. However, one may come in contact with some of these without his knowledge, as in case of arsenic poisoning from wall paper, lead poisoning from pipes through which pass drinking water, or while working with paints, dyes and enamels; or carbon monoxide poisoning from

leaking pipes in or about the house when the escape has been too small to attract attention or when the odorous fumes have been extracted, etc. There are some, too, who take certain *drugs* without the knowledge that they may give rise to headaches. Quinine and the coal tar products are especially in this class, also nitroglycerine, strychnine and other "heart remedies." *Confinement* within doors should not be overlooked as a cause, especially when the ventilation is inadequate. Poisoning by *food* usually has other and abrupt symptoms, making the cause of the headaches not especially difficult to determine.

CHAPTER XI

Treatment of Headaches

WHILE the causes of headaches appear to be many, and their recital has taken a good many pages, yet by study of the main classes of causes we find that there are comparatively few to be considered. Among the functional headaches are the following: (1) the various toxemias—auto-intoxications, metabolic disturbances, infectious diseases, and drugs; (2) circulatory disturbances—anemic, hyperemic or congestive, and vascular disease; (3) neuropathic conditions — neurasthenia, hysteria, epilepsy, etc.; (4) those associated with various disorders of adjacent structures —the eyes, ears, sinuses; (5) reflex—from the eyes, teeth, nasopharynx, stomach, sexual organs. Then we have the independent headache, migraine, which is described in detail and its treatment given in a later chapter. In addition to these we have the organic headaches, which have been very briefly described, with necessarily an imperfect idea as

to the treatment for some of them. These latter conditions are absolutely in the domain of the physician or the surgeon, whereas most of the functional headaches may be relieved or eliminated by the sufferer himself.

But it must not be supposed that one definite line of treatment will suffice for all headaches, of whatever cause or causes. Since in many cases the art and science of the trained and skilled physician is taxed to discover the exact nature of the headache, so it is not to be expected that the patient himself will be able to discover the exact cause in his own case every time. As stated before, it is necessary to make a careful survey of the entire body in many cases of headache, and probable cause after probable cause must be considered; these may be eliminated one at a time until eventually the positive or most likely cause stands alone. Until at least the type of cause is discovered the treatment will be on the hit or miss order—very likely on the latter, with a result of failure to secure relief. And there are certain causes, such, for example, as vascular disturbance, or drugs, or epilepsy, or sinus involvement that must be positively determined if one is to prevent possible worse conditions.

Even if for no other reason than to discover that the headache may be due to some organic condition, it is important to search for and find, if at all possible, the precise cause.

Those who are subject to persistent headaches, who are able to get little or no relief by the remedies to be presented in this chapter, should consult the best medical skill within their reach and within the reach of their purse. A headache that does not respond materially within a few days at most should be considered as unmanageable by home means, and relief or an examination to discover the cause should be sought elsewhere.

Factors of treatment vary in importance in different cases. The following various factors are given in the order found, because this will be the order of their importance *ordinarily,* but not in all cases: Rest, including sexual rest; internal cleansing; diet; hydrotherapy, local and general; heat; massage; spinal manipulation; electricity; suggestion; and health education. Besides these, there will be still some other forms of treatment for special cases.

REST

Many times direction to rest will not be

necessary, for there will be little inclination for anything else. However, many of the nervous, busy-body type apparently feel that if they stop work, or "calling" (gossiping!), the world will stop then and there; and there are many others who have so much necessary work to do that any rest is followed by many additional hours of work, and this extra work may result in an exhaustion headache when they return to their duties. Many headaches do not require absolute rest, but in many rest will be a saving of time, of nervous energy, and a possible preventive of worse things. In many cases absolute rest is necessary during the headache, and yet a great deal more of exercise is needed between or after headaches, because of constant lack of it.

There are many headaches associated with other conditions that require rest, even when the headache itself does not require it—rheumatism, gout, uremia, tuberculosis, etc. In all cases of fever rest should be enjoined until this symptom has subsided, and usually until other important symptoms have been placed well under control, and no patient should move about so long as fever exists, whether there is headache or not.

Some headaches require not only rest but fairly close confinement in darkened rooms, especially those due to eye defects and eye-strain, also those of neurasthenia and hysteria because any external stimulus tends to intensify the nervous and head symptoms. These latter two also require as complete mental rest as can be secured, which means that there should be no constant association with members of the household or visitors or callers; also freedom from the aggravation of noises of all sorts, though the proper kind of soft and melodious music is helpful rather than hurtful, when in small doses.

In all those headaches due to brain irritations and inflammations, including compression and concussion and sunstroke, there should be put forth the greatest effort to prevent the slight jars that so frequently occur about a house, due mainly to walking and slamming doors, perhaps in an adjacent room or overhead; these may start up or aggravate a paroxysm of intense pain in some cases.

Headaches resulting from mental overtaxation do not, usually, require physical rest; in fact, many of these are made comfortable almost at once by some light, fresh-air work or a

walk. But if there is in addition an anemia or physical weakness, physical rest should be ordered until the ache is considerably reduced. The headaches of strong emotions require physical activity as soon as the pains will allow, providing there is not very high blood pressure or an organic heart or kidney condition.

Many cases of abdominal or pelvic prolapsus responsible for headaches can be restored to normal by rest in the recumbent posture alone, or in combination with other satisfactory treatment. So long as one with a prolapsus or with a displacement of the uterus or considerable pelvic congestion with enlarged uterus remains upon the feet for long hours a day, and, especially, does any lifting or stretching or becomes physically exhausted, the pelvic condition will remain to irritate the nervous system and cause some degree of headache in those susceptible to it.

When consciousness has somewhat returned following an apoplectic stroke, and after the paralysis has been partly corrected by partial absorption of the brain clot, there must be continued rest for some time, especially if the individual is of the energetic type who has always been mentally or physically active. Be-

cause of the mental obliquity of such an individual he will likely be inclined to do more than he should; and because such an one is irritable and adverse to opinions of others it will require much tact to keep him quiet and at the same time mentally composed. But it must be done. The same may be said of many of the organic conditions causing headache.

Sexual irritations and excesses frequently cause or aggravate headaches, and complete sexual rest is necessary in many cases. Where there has been sexual excess even without noticeable pelvic abnormalities indulgence is very likely to produce an anemic, congestive, neuralgic or exhaustion headache, or possibly a migraine attack, and especially in hysteria, neurasthenia, and epilepsy, and in the highly emotional. In many cases of neuralgia sexual indulgence is also very apt to originate a paroxysm of nerve pain with the neuralgic headache or trifacial neuralgia, or to intensify an existing attack.

Men who have prostatic irritations and enlargement, with general sexual weakness as a result of sexual excesses, sexual disease or general physical decline, frequently get a protracted headache from indulgence. The prac-

tice of withdrawal is to be condemned at any time and for any reason, but especially in the neurasthenic or sexually weak or exhausted the sexual excitement with the continued congestion of the pelvic organs without normal relief will very probably result in a prolonged exhaustion or reflex headache.

DIET

It is safe to say that practically all headaches have been made possible to a considerable extent, if not entirely, by an unbalanced diet or one in excess of body needs or one that in some way did not supply the body with every food element necessary for health. Therefore diet will be important directly or indirectly in the treatment. Dietetic errors are responsible for substantially all the autotoxemias except those from drugs (not including the drugs of tea, coffee and alcohol), many of the anemias and hyperemias, arteriosclerosis, apoplexy, lung consolidations, some of the neuropathic conditions and various disorders of the nasopharynx and of the structures adjacent to the brain, and many of the organic conditions; it is not to be questioned, then, that diet will play an important part in

relieving them and, therefore, the headaches resulting from them.

Constipation is the origin of many toxic disorders, and must be corrected in addition to whatever else is done to relieve the headache. Many times diet alone will do this.

Except in cases of anemic headache the best dietetic treatment—and I might add, the best treatment of whatever nature, for many cases at least—is the absolute fast with an abundance of water, or a diet of acid fruits, or of their juices, diluted and unsweetened. By this diet solid foods that form acids and gases and irritating compounds are kept out of the digestive tract, and accumulated toxins are more readily eliminated from the alimentary canal and from the blood. This kind of diet also frees the stomach lining from irritation when such irritation has been the result of eating wrongly or when there is no definite appetite. Then, too, it takes off the weight of additional food in a pendulous or prolapsed stomach, relieving the irritation of the "drag" upon the nervous system, and permits the stomach to ascend more nearly to its normal position in the abdomen. Furthermore, it helps to reduce weight when there is obesity and the blood can

absorb deposits in the arteries and other tissues, and clear away congestions and inflammations, such as occur in pelvic conditions. It relieves congestion in the kidneys and liver, thus helping general elimination of toxins. And it restores or tends to restore circulation equilibrium, dissipating an excess of blood in one part, as in the head in case of hyperemic headache—and sometimes even in anemic headache where there is interference with the flow of blood to the brain.

The fast may directly or indirectly favorably affect the cause of headache; and I have seen this procedure, with the drinking of three or four quarts of water daily, quickly reduce a stubborn headache. Many chronic conditions will require many days of fasting to reduce sufficiently so as to remove the headache.

A definite time limit for the fast cannot be given without knowing something about a particular case, but my suggestion is to fast until there has been relief, providing this can be brought about within from five to seven days. If it is evident that it will require longer time, it is probable that the headache is due to some condition of an organic nature. I have purposely lengthened the fast to this time

since very frequently there is an aggravation of headache and other symptoms on or about the second day of a fast, lasting until the third or fourth day. Therefore, the fast must continue beyond this period or one may receive no favorable change or permanent benefit. Ordinarily, a headache that can be benefitted directly by fasting will be relieved after only two or three meals have been omitted.

Organic congestion or inflammation producing headache—as in digestive disorders, kidney and liver disease, arteriosclerosis, pelvic diseases, etc.; severe chronic disorders, as diabetes, rheumatism, gout, epilepsy, etc.; and severe acute, infections and the more severe eruptive fevers—requires a fast for as long a time as the weight, strength and vitality of the patient will permit, or until acute symptoms have passed. This may require from five or six days to fifteen to thirty days or even longer. This treatment is not for any one attack of headache but for the condition underlying constant or recurring headaches.

After the fast, or in other cases where the fast is not followed, the simplest possible diet of natural foods in simple combinations should be followed. It would be irrational to say that

there is a special diet for headache, though there might be for the underlying condition. It might be better in some instances to refer to some book on specific diets for certain conditions, but for the majority of cases it would be well to adhere to the following diet to bring about at least a partial restoration to normal.

A *breakfast* of fruit alone is sufficient in many cases, especially if one is above normal weight or has arteriosclerosis, high blood pressure, tendency to apoplexy, kidney, liver or pelvic congestions, adenoids and enlarged tonsils. Unsweetened fruit juices or fresh fruit may be taken. In cases of gastritis and dyspepsia and sometimes in rheumatism, gout and allied conditions it is frequently better to have for breakfast simply a glass or two of hot water or a cup of thin strained oatmeal gruel or barley water. When there is no serious or critical condition or any definite reason for keeping the diet so low, the breakfast may consist of stewed fruit with or without milk or buttermilk (but with no sugar), depending upon the digestive ability and the general condition; or in many cases there may be added to this a shredded wheat biscuit or two, or some other whole grain cereal with

"top milk" or with skimmed milk, in some cases without milk. A glass of diluted fruit juice may be taken from fifteen to thirty minutes before this breakfast. This will be all that is necessary for any one who is not doing hard physical labor. Even in that case it would be better to adhere to these two foods, but to increase the quantity of each, and cream or rich milk may be used on the cereal; for the laborer sweet fruit may be added to the cereal, which will make it all the more necessary to masticate the food thoroughly—an important feature in dietetics, especially in the treatment of digestive troubles.

Dinner (lunch) should consist either of stewed or fresh fruit and buttermilk or sumik (whipped clabbered milk); or buttered whole wheat bread, very dry or thoroughly toasted, masticated thoroughly and followed by a pint or so of sweet or any sour milk; or of a green vegetable salad or one or two cooked green vegetables and whole wheat bread as above, with either a bowl of vegetable broth or soup or stewed fruit or a glass of buttermilk or sumik (not sweet milk). If one is laboring hard, pot cheese or nuts or gelatin may be added to either of these combinations, but

nuts must be masticated very thoroughly; or a baked potato may be added to the meal of cooked or uncooked green vegetables. As meat is necessary but once a day or less, it is not given at this meal. Where the largest meal of the day is regularly taken at midday the meal immediately following may be taken at this time and the meal just given may then be taken in the evening.

Dinner (supper) may best consist of a vegetable soup (taken without crackers), a green salad, one or more cooked green vegetables or one green vegetable and a small baked potato with butter, and pot (cottage) cheese or nuts or stewed fruit. Both the cheese or nuts and the fruit may be taken by those doing manual labor if the smaller diet fails to maintain energy, strength and normal weight. Occasionally, say three times a week, a small amount of meat may be taken at this meal, but there should be a large vegetable salad or plenty of cooked green vegetables, and there should be no cheese, nuts or potato. Bread is not necessary at this meal, but a slice or two of dry or toasted whole wheat bread may be taken when meat and potatoes are not used in the meal.

To many this will seem to be a very meager allowance of food, but it is usually just those to whom it will appear the smallest who most need to be so restricted. And many of these would do still better to take the breakfast as mentioned, eliminating the noon-day meal, and then at the usual evening meal take either the dinner or supper here given, making but two meals a day. It is difficult to determine the quantities of each food that should be taken, but there are fairly well recognized standards of "portions," and these should be adhered to rather than enlarged merely because the variety is reduced. But to enlarge the diet increase the portions rather than the variety. The absence of spices and condiments and rich foods will tend to prevent one from overeating, as there will be no direct stimulation of the appetite through the over-solicitation of the taste buds. No liquids except water, fruit juices and some form of milk are included as drinks, and none should be taken.

In case of anemic headaches the blood condition must be corrected, and the diet should be more liberal, but great care must be taken to avoid overtaxing the digestive system, and

to keep elimination normal through all channels. Nothing is better for doing these things than to use the full milk diet, the quantity of milk taken daily usually being from four and one-half to five or five and one-half quarts for women, and about a quart more for men, the height, weight, energy, digestive capacities, abnormal condition and occupation governing the amount. Some form of sour milk or at least skimmed sweet milk is frequently better than whole sweet milk in pernicious anemia. In these as in all other cases where the milk diet is followed it is necessary to take fruit juice only, for at least one day in preparation for the milk diet. If one is of overweight the fast may be continued for several days, regardless of the anemia, if there are no untoward symptoms.

If the solid-food diet is used, the main foods should consist of milk in some form (preferably sour), whole grain cereals, sweet fruits, nuts, cottage cheese, and eggs, with, of course, plenty of green vegetables and fresh fruits, and an abundance of water between meals. Three meals a day will be more satisfactory than the two-meal plan for most anemic cases.

HYDROTHERAPY

Internal Cleaning. No fast should be taken without a regular daily enema, but this treatment is useful at other times in case of headache. Whether the bowels are or are not removing from the body their quota of waste material an occasional internal cleansing is a health-promoting factor. In headaches from constipation and various digestive disorders, a quart or more of plain warm water should be injected into the bowel, retained for from two to five minutes, and allowed to bring with it all the accumulated waste in the lower bowel. This will also stimulate peristalsis and hasten onward the contents of the upper portions of the colon. In this way one will secure a good cleansing of the major portion of this "disease-breeding" but necessary organ. But usually colonic irrigations should be taken as a direct headache treatment. From two to four quarts of medium warm water should be injected into the colon by a colon tube of eighteen inches or longer, and retained for from three to five minutes before expulsion.

After the bowel is emptied relief will usually follow shortly in headaches from digestive dis-

orders and especially in constipation headaches and those resulting from flatulence and intestinal indigestion; also in other headaches where there is an unsuspected factor of toxemia. The mild stimulation of the sympathetic nervous system will have a beneficial influence also, and the absorption of some of the water will be of advantage. There will also be a definite influence toward reducing pelvic congestions and inflammations.

During the fast the enema should be taken daily except when the fast is continued longer than one week, after which time it may be taken on alternate days. In severe constipation the enema should also be taken daily for several weeks, whether or not the fast is employed. In other cases a rectal (or colonic) irrigation may be taken, on alternate days to once a week or so. But in an attack of headache the enema should be taken immediately at the onset, and again after three or four hours if the headache continues. It is sometimes necesary to repeat immediately the enema in order to clear the bowel satisfactorily.

The temperature of the water employed should be but slightly warm, except when there is pelvic congestion when fairly hot water may

be used. Avoid too long retention of the enema, especially in severe constipation and headaches from intestinal toxemia, as the long-retained water favors absorption of toxic elements from solid waste plugs that have been harmless before. Two or three minutes is usually long enough, and not over five minutes should be allowed before the enema is expelled.

General Hydrotherapy. The use of water in the treatment of various disease conditions has become practically a science, and if it were more frequently used in the homes practically every form of disease could be entirely removed or greatly mitigated. But it is impossible to give in a book of this kind the proper hydrotherapeutic treatments for the various disorders that may give rise to headaches. A book on hydrotherapy should be consulted if specific treatments for all diseases are desired.

For the headache there are a few water treatments that may be used effectively, in many instances at least. The well-known cold compress to the head has been used for ages. Especially in the congestive headaches cold applied to the head tends to contract the cerebral vessels and reduce the congestion and the throbbing. The cold wet cloth may be applied

Illustrating the head turban, for headaches, congestion and anemia. The towel (Turkish) is folded lengthwise until four or five inches wide. After wringing from water at the desired temperature it is started at the left of the forehead, carried completely around the head to overlap the starting end, and the remaining end is then unfolded and spread over the head.

to the forehead only, especially in case of frontal headaches and those from eyestrain, or it may be applied in turban fashion about the entire head. If cold to the forehead aggravates the pain, cold to the neck at the same time will prevent this.

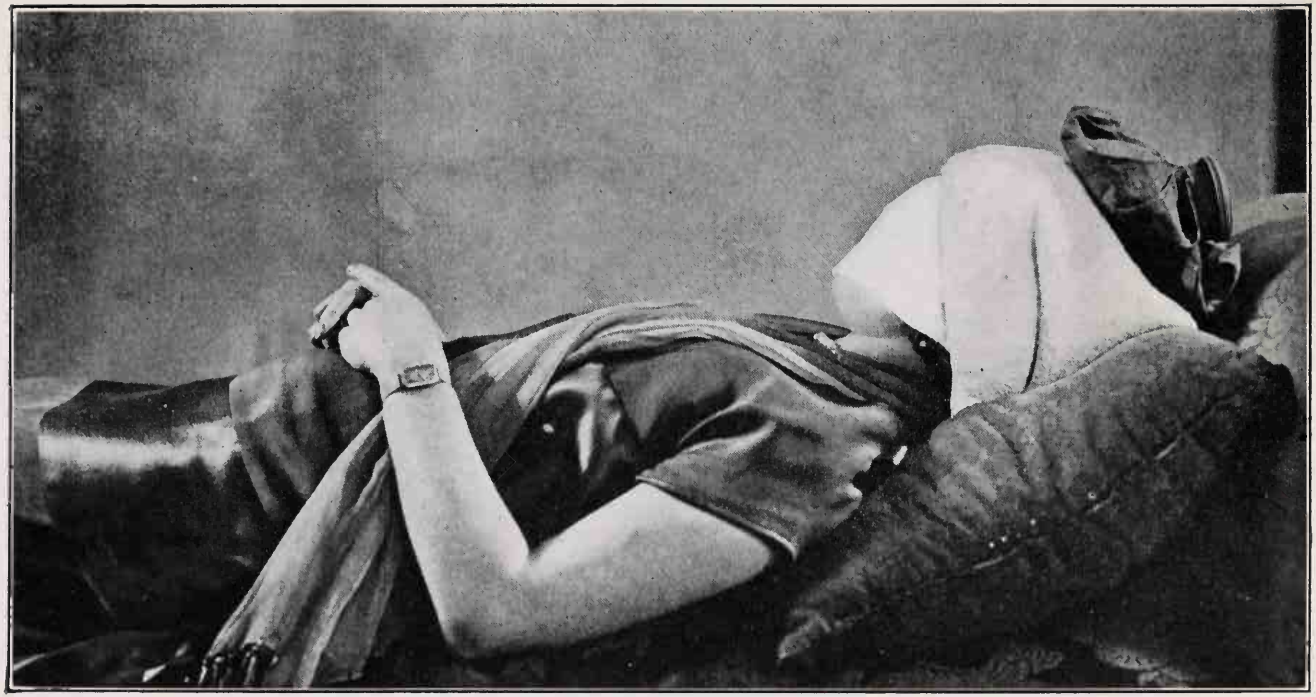
To apply the turban, fold a towel lengthwise until it is three or four inches wide; starting at one temple bring the towel across the forehead and around the head to the center of the forehead, overlapping the beginning end, then partly unfold the towel and spread it over the head toward the neck. To keep this cold it may be sprinkled with cold water occasionally, or replaced by another turban, or a partly filled ice-cap may be placed on top of the head or against it, or on the forehead if one is reclining.

The cold usually aggravates rheumatic or neuralgic headache, and hot turbans or other cloths are preferred, kept hot by changing, or use the hot-water bottle. These hot cloths are helpful in anemic headaches also. In all compresses to the head for cerebral congestion the main compress (cold) or an additional one should be pressed down firmly over the eyes,

and better results will be secured by applying cold to the neck at the same time.

The combination of hot and cold applications to the head is of exceptional value in cerebral congestion from any cause. To apply properly, place very cold compresses or an ice-bag over wet cloths on the back of the neck and dome of the head, and very hot compresses at the same time on the face, extending back to and including the ears, but not lower than the line of the lower jaw. The opposite arrangement may be equally effective—wet cloths applied to the back of the neck and at the same time very cold porous-cloth compresses to the face and top of the head. Practically all congestive headaches and irritations and inflammations within the cranium may be so treated with benefit, especially passive congestions. This is one of the most effective local treatments that we possess.

In congestions another local treatment is the alternate application of heat and cold to the head, either by applying the alternate temperatures an equal length of time, or far better, the continuation of the hot compresses for four or five minutes and then the application of cold for half a minute or so. In either case



Hot and cold compress for congestive headache. Apply very cold compress about head, above the ears, ice cap over this; an ice bag is placed under the neck. Very hot cloths are placed on the face, not below the jaw, at the same time.

the hot and cold may be alternated from two to four or five times, as seems necessary.

For frontal sinus congestion an excellent treatment is the application of cloths wrung out of a mixture of equal parts of lemon juice and water, applied hot for an hour or more, then bound in place and covered with dry flannel for the night. This treatment should be repeated for several nights, though it will probably give some relief over one night.

For congestive headaches another frequently effective water treatment is the hot foot bath, which draws the blood from the head to fill the dilated blood vessels of the feet and lower extremities. Similar effects while reclining may be obtained by hot packs, dry or wet, applied to the lower extremities.

Frequently a girdle about the abdomen, hot or applied cold and covered with dry flannel to become warm from the body heat, is effective in congestive headaches, abdominal disturbances and nervousness. A cold compress covered with dry flannel may be used instead of the girdle.

In infectious fevers a general tub bath or a wet sheet or blanket pack will prove beneficial in reducing the fever and toxemia, and there-

fore the headache. The bath should begin at body temperature; in the initial stage of the fever it should be fairly quickly raised to quite hot to produce perspiration, but in the later stages and in high fever the bath should remain at *normal* body temperature or be slowly lowered until the body temperature approaches normal. Give friction to the body when the bath temperature is lower than five degrees below that of the body, and a turban should be about the head, kept cold by changing or sprinkling. The patient should drink a glass of hot water each ten minutes during the hot bath, which may be continued for thirty minutes, more or less, depending upon the time required to produce perspiration.

Effective local treatment for fever headaches is the cold wet head compress with the ice-bag, or the general cold wet compress over the entire head including the eyes and the back of the neck. To prevent cerebral congestion use very cold compresses about the neck and throat, after a cold application to the forehead, face, head and neck. Simply wetting the hair with cold water occasionally is helpful in cerebral congestion. A light porous cloth may be kept over the head and this may be

sprinkled with water frequently, but the hair should be soaked, also. This is especially helpful in cases of acute active congestion.

Another effective treatment for congestive headache is the wet-sheet pack, providing this is covered with sufficient dry material (preferably flannel) to bring about reaction to warmth. An enema at 102 to 103 degrees is also good to drain the blood from the head.

When the back of the neck is hot and congested and contracted it is usually helpful to stroke the head from the forehead to the nape of the neck with cold cloths and then apply such cloths directly to the neck for half an hour or longer. This is especially good in neurasthenia, hysteria, mental over-exertion and following violent emotional outbreaks.

Sometimes the neck will be cold, possibly clammy, yet contracted. Here it is better to apply heat, to be followed by massage. If the head is hot at the same time, stroke with cold cloths as described above, and massage the neck, after applying cold. If there is anemia, apply hot cloths to the head for some time, or cold for not longer than from one to three minutes. The long hot and short cold applications may also be given for anemic

headache. The hot "collar" may be applied while heat is being applied to the painful area of the head. The hot turban covered with flannel is of value, also the fairly warm tub bath for ten to twenty minutes followed by a cool or cold bath and then with some kind of friction. For general treatment a daily cool bath should be taken, followed by friction. The bath temperature should be lowered daily until it is taken fully cold.

Headaches due to high blood pressure may be treated by the prolonged tub bath at body temperature or slightly above, while at the same time cold is applied to the head; or the hot sitting bath may be taken, with cold turban. Either of these should be taken daily. If they are not available, then hot packs may be applied to the legs.

Relieving water treatments for headaches resulting from toxemia are sweating baths followed by some form of cold bath. The sweating baths may be by electric cabinet, Turkish bath, hot tub, hot-blanket or wet-sheet pack. Cold should be applied to the head during any sweat bath. The nude sun and air bath will be helpful, and large quantities of water

should be taken daily. The warm enema should be taken every day or on alternate days.

In the treatment of nodular or rheumatic headache quite hot cloths should be applied to the head and back of the neck (where the small painful nodules are) for thirty minutes or preferably longer, and each of these small swellings should then be massaged, even though the pain is severe at first; it will gradually reduce during the massage, but this treatment should be given daily or on alternate days, probably for weeks. The daily sweat bath is advisable in these cases, also, but in this case cold should not be applied to the head. The hot foot or leg bath or packs will be helpful when sweating cannot be taken.

The headaches of Bright's disease may be relieved by the combined hot and cold compresses and the general hot bath with cold turban. A daily sweat bath followed by a short cold friction will improve skin and kidney function. Daily cold wet-mitt frictions will be beneficial but warmth must be established by the friction. The body must be warm at all times. The warm enema is helpful, and much water should be drunk.

When due to liver congestions and defective

functioning headaches may be relieved by the combined hot and cold compresses or the long hot and short cold applications. This latter treatment may also be applied to the legs. Considerable water should be drunk. The enema is of value, but should start with fairly warm water and the temperature and quantity should be reduced daily until not over four ounces of cold water are used, which reduction should be accomplished within two weeks. This is also a good plan to follow in treating constipation with or without headache. Hot or alternate hot and cold compresses over the liver are of value. On improvement gradually cooler and more vigorous general baths should be taken. The headache of valvular heart disease may be relieved by cold compresses over the heart region and the cold head turban. A fairly long bath at body temperature, with cold head turban, will be helpful also. Considerable water should be drunk, and a slightly cool enema may be taken with benefit.

In neuralgic headaches heat may be applied directly, or combined hot and cold may be applied to the entire head, if the cold does not aggravate. To these local measures add hot abdominal cloths twice daily, or the hot sitz or

sitting bath, the hot foot bath, or the hot leg packs twice a day, or either of these may be given once a day in addition to the hot abdominal compresses twice daily.

The headache of neurasthenia may vary as to location and character. In case of frontal headache apply to the forehead the alternate long hot and short cold compresses, repeated as many times as necessary. This alternate treatment may be given to the legs and feet also, by cloths, sprays or sitting baths. For headache at the back apply hot cloths here and to the upper spine, following the alternate treatment to the back of the head. For the congestive neurasthenic headache apply cold to the forehead and neck and hot porous cloths to the face and ears; or, if more agreeable, apply cold face cloths, with the protected ice-bag to the back of the head. Hot leg baths or packs are beneficial also. In nervous headaches hot cloths should be applied to the head while the feet are in hot water; or apply the treatment given for migraine. For the bands and similar head pains either the alternate or combined hot and cold applications will be of benefit temporarily, also the alternate treat-

ment to the spine, and the long neutral or tepid full bath.

In the "nail-piercing" headache of hysteria apply very hot cloths over the painful area for ten or fifteen minutes; repeat every two or three hours, with a hot foot bath at the same time. Cold compresses at night, protected to recover warmth, are of advantage.

In the headache from pelvic disorders, the long hot sitz followed by the short cold sitz will usually bring relief; the combination hot and cold compress to the head will also help, especially if followed by head massage. Hot hip packs or very warm packs to the inner thigh surfaces may also be used to advantage.

In neuralgia of the scalp that is sometimes so severe as to be in effect a genuine headache, hot head packs or hot turbans will greatly relieve the pain, sometimes permanently; but, unless cold causes a return of the pain, short cold applications should follow the hot ones. Gradually deepening massage of the scalp will usually bring relief, though at first it may be almost unbearable. If the pain is due to uterine irritation the hot vaginal douches or irrigations will be beneficial, or the hot rectal irrigation may be used. An excellent treat-

ment for pelvic irritations of women is hot packs or the hot water bottle over a wet cloth applied to the lower spine while at the same time very cold cloths or the ice-bag over wet cloths are applied to the lower abdomen. These may be kept in place for an hour or more, then heat may be applied to the abdomen alone for half an hour or more, and the two packs again applied. Heat to the inner surfaces of the thighs is frequently of great value. The hot rectal irrigation is excellent in case of prostatic irritation causing the sensitive scalp condition. Or the hot sitz bath or hot foot bath may be effective in case of pelvic irritations of men or women. Complete rest and sleep may be the most important factor in many cases of scalp neuralgia, and the general neurotic tendency should receive attention, by rest, recreation, fresh air, diet, hygiene, etc.

When resulting from inflammations and irritations of the eyes, ears, nose, nasopharynx, and teeth, headaches may be relieved by long hot and short cold head compresses, and especially when placed over the seat of the disturbance. Hot foot baths, hot leg compresses, and hot sitting or sitz baths may all be considered in these cases.

For the headache of cerebrospinal meningitis heat should be applied to the back of the neck, alternated with the ice-bag over wet cloths to this region, and alternate hot and cold compresses should be applied to the head, the final application to be cold. The cold only should be applied in the cases of cerebral concussion and compression, in encephalitis, cerebral abscess, and inflammation of the brain covering. In these apply the ice-bag, but always over wet cloths.

In almost any of the headaches resulting from disorders of the digestive tract, especially nervous dyspepsia, the hot and cold spinal applications are helpful, also the hot and cold head compresses, either alternating or combined in one application. Alternate hot and cold abdominal compresses are frequently very agreeable and soothing.

Valuable treatments for the headache of gout are the alternate hot and cold compresses to the head, with a hot foot or leg bath at the same time; the combined hot and cold head treatment; hot leg packs; hot enema or rectal irrigation; and drinking large quantities of water. The same treatment will be valuable for the headaches of lithemia, or if the latter

are in the temporal region hot applications may be given to the entire side of the head, followed by gentle massage, then warm dry flannel compresses. This treatment may be repeated four or five times a day.

Water treatments will not remove the cause of organic headaches, but their use will give some measure of relief, and in some cases cause a gradual reduction of the inflammation, especially if other measures are employed, particularly proper diet. In these cases there should be given several times a day, very hot applications for three or four minutes followed by cold applications for twenty seconds or so, and then repeated once or twice; then a wet cloth may be placed over the head and kept there until time for the next alternate treatment. Also several times during the day there should be given four- or five-minute very hot applications to the legs, followed by half-minute cold applications, these to be alternated three or four times.

It is not to be expected that these water treatments will do more than act as palliative for many of the headaches. It will be usually necessary to alter the diet, to clear the bowels, and to change some of the hygienic and per-

sonal habits, to secure permanent relief. But without doubt these treatments will have a very favorable effect upon a single attack of headache, and in some cases they will work with more or less directness upon the cause or causes of the pains. At any rate they are valuable in conjunction with the several other factors of treatment to be considered.

MASSAGE

In some of the conditions considered above massage was specifically mentioned, but in most of them it will be indirect in its effect rather than direct. In the rheumatic headache massage to the painful nodules is an important direct treatment. In congestive headaches the massage should be confined to the lower extremities, abdomen and back; and unless there is heat or pain or contraction of the spinal muscles it is usually advisable to confine this manipulative treatment to the lower back, the extremities and the abdomen. When applied here it is inclined to drain the cerebral vessels and thus relieve headache.

In all cases of anemia general massage serves as a mild form of exercise, improving circulation, digestion, assimilation, metabolism

and elimination, thus gradually improving the quality of the blood. In these cases massage to the head itself and especially to the back of the neck will help increase cerebral circulation. The treatment should not be harsh nor long-continued, but a daily massage of ten to fifteen minutes devoted to the scalp and neck will be rewarded with at least some improvment. The massage should be given in the recumbent posture for still better effect upon the cerebral circulation.

In neurasthenia a general massage, including gradually deepening massage to the neck and scalp, will quiet the nerves and improve their functioning. Many cases of neurasthenic headache have been relieved by no other treatment than massage to the neck muscles, though a massage including the scalp and face and also the spine will usually have a better effect. In hysteria much depends upon the type of individual who is giving the massage as to what the effects will be, and this is true in some degree of neurasthenia. These neurotic individuals are very sensitive to the vibrations of others, and unless they are calmed the headache will very probably be made worse instead of better. In hysteria, massage follow-

ing hot packs or the application of heat rays from a therapeutic lamp will usually have more decided effect than massage alone, unless there be too much "fuss" made in giving the heat, or unless the heat be too intense or continued for too long a time.

In the headaches of hay fever and other nasal and sinus troubles massage to the forehead and face, including especially the root of the nose and the bony margins of the orbits, will be most soothing and will be inclined to reduce the severity of the causative local condition as well as the headache. Hot cloths may first be applied to the face and forehead, these being kept hot for five minutes or so, then followed by short applications of cold; two or three changes of hot and cold may be made before giving the massage. Stroking the entire head, from the forehead to the neck, may be included in the massage, which may be completed by massage of the neck. This method is also good in neurasthenia.

The headaches of mental over-exertion may be relieved by local or general massage, especially by massage to the head and neck; also by hot spinal packs followed by spinal massage. When the headache is from physical ex-

haustion general massage will be of even greater relief, and the head and neck massage may be employed for additional comfort. The hot spinal packs, with or without massage following, will quickly help to remove fatigue and fatigue poisons and restore the body energies. Complete relaxation and sleep will usually dispel the headache or what remains of it after such treatment.

Spinal Manipulations

There are several systems of treatment by spinal manipulation, each of which has had marked success in the treatment of headache, as well as a great variety of other symptoms and abnormal conditions. Among these are naprapathy, osteopathy, chiropractic, mechanotherapy, neuropathy, and Swedish manual. The first three named more directly reach the cause, and especially the first two.

In the treatments by naprapathy and osteopathy the ligaments and muscles about the spine are manipulated in such a way as to relieve tensions and contractions, and when this is accomplished the circulation to and from the brain and head is more nearly normalized and the irritated nerves relieved, in many instances

the headache being relieved within a very few minutes after other methods have failed to affect it. Chiropractic treatments (and to a considerable extent osteopathic treatments also) aim to replace displaced vertebræ. Practitioners in these sciences have been able in a great many cases to bring almost instant relief from headaches, through accomplishing unknowingly the release of soft-tissue contractions and tensions, plus correcting an occasional vertebral displacement.

It might be well for any one to consult one of these various physicians for a headache that fails to respond to "home remedies" before resorting to more dubious treatment, as by medical and surgical means. However, it is well to be distrustful of the physician, whether he be manipulative, naturopathic, or medical, who begins or suggests treatment without first obtaining a full history of the case to be treated and without making as complete an examination as possible—and not just an examination of the spine!

Excellent treatments that cannot be classed with either of these systems or with massage, though they are frequently used by osteopaths, are extension and traction of the neck. For

How to hold the head for congestive headache. By tilting the head backward the jugular veins are straightened, allowing them to carry the blood from the brain more rapidly, and kinking the neck and pressing with the fingers on the neck prevent the blood from flowing full force through the vertebral arteries.

congestive headache the chin and back of the head may be grasped firmly but gently in the palms (the patient seated) and the head then pulled upward in line with the spine for an inch or more, held for from one to two minutes if there is no dizziness, then the head allowed to slowly lower to position. The treatment may be repeated within five or ten minutes if necessary, or at any time the headache returns in severe form. Another position of the hands for the same treatment is grasping the sides of the head with the palms upon and below the cheek bones, the thumbs below and back of the ears, using care not to press firmly upon the ear lobes or too firmly upon the sides of the head. The upward pull should be steady.

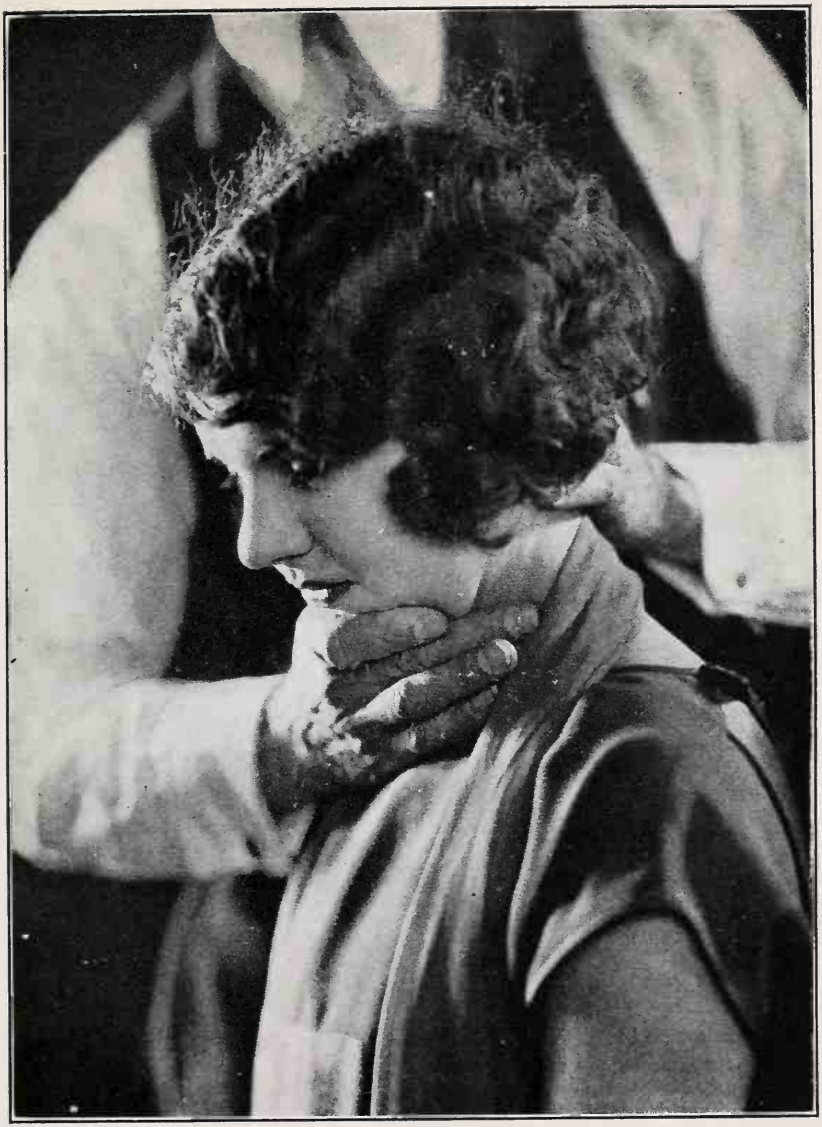
Another treatment for congestive headache is given as follows: Grasp the patient's neck just below the skull with one hand, the palm of the other hand upon the forehead. The forehead is gently forced backward until the patient looks upward, while firm but gentle pressure is applied to the junction of the neck and back of the head. Hold thus for a short time if there is no dizziness, then slowly relax. Repeat if necessary. Another treatment may be given, with the patient reclining, by

giving steady pressure through the palms, one of which is at the back of the patient's head and the other on his forehead. This may be alternated with similar pressure sidewise upon the dome of the head.

For anemic headaches similar simple treatment may be given. With one hand under the chin and the other on the back of the head, the head is slowly and gently bent forward until the chin rests upon or approaches the chest, while the neck is somewhat extended by forward-downward pressure upon the upper hand. After holding a minute or two the head should be slowly raised, then the movement repeated. The patient may give himself somewhat the same treatment but much less effective, by pulling his head forward with his hands. This position allows more blood to enter the brain through the vertebral arteries while at the same time partially obstructing the escape of blood through the jugular veins.

ELECTRICITY

There are several forms of electricity that are used in therapeutics to obtain various effects upon the nerves, circulation, congestions, inflammations, deposits, etc. These forms are:



The manner of holding the head to relieve anemic headache. Bending the head slightly forward and forcing the chin in, kinks the jugular veins so as to prevent rapid outflow of the blood from the brain, and lifting up on the back of the head straightens the vertebral arteries and more blood flows through them to the brain.

static, galvanic, faradic, high-frequency current, and sinusoidal current. Each has its place in the treatment of disease, but few physicians use all of them. Except for some applications by the static form there are few applications given directly for headache. The most satisfactory static treatments are the static douche, static air bath, static breeze, and static flashes.

The treatment of diseases or symptoms by electricity is strictly the work of the trained physician, though not necessarily the medical physician. As the electrical apparatus is expensive and requires special training for satisfactory results without danger of harmful effects, electrical treatments cannot be secured at home, except as a physician may have a (more or less ineffective) portable outfit. The small "violet ray" outfits found in so many homes will have little effect upon headache or any underlying cause of headache, though in a good many cases it has been reported to me that considerable relief has been obtained by using these for the head or for abdominal or pelvic or other congestions and pains. Ordinarily, however, it is far better to secure any electrical treatment from a physician who has

given much time to the study of this form of treatment and who has had a wide experience in this field, and who has suitable equipment.

SUGGESTION

Every successful physician, whether he be medical or drugless, uses suggestion to a considerable extent, either knowingly and intentionally or unintentionally. It may be of little value in many cases of headache to employ this agent, but in the neurasthenic and hysterical cases, also in some of the anemic, congestive and reflex headaches, this is a valuable factor of treatment. One may not be able to secure relief by suggesting to himself that he has no headache, but at least one can refrain from allowing his thought to center entirely upon the pain, much as the inclination is to do so—because of the nature and location of the pain.

Two things cannot occupy the mind at the same time; and as pain concentrated upon is pain intensified, in order to reduce pain one should either banish *all* thought or occupy the mind with something of interest and pleasing yet something which will not require mental effort, as cross word puzzles or other problems.

The card game of "solitaire" or "patience" is an excellent example of suitable mental occupation. As an aid to the routing of thought and frequently the feeling of pain, one should be in comparative darkness with the eyes closed and covered with the palms so that these do not touch the eyelids; while in this attitude the field of vision should be made one solid color, preferably black, by negatively concentrating (not straining the attention) upon the darkest color observable. Cloths may be better to cover the eyes, especially if these are cold wet cloths. Whatever else is done avoid fixing the entire thoughts upon the pain, and especially avoid working into a rage and passion because of the pain, as thus acting can only serve to make the pains more violent. The general and specific treatment for migraine will prove helpful in many other headaches except the anemic forms.

DAILY LIVING

We have found that headache is but a symptom of some functional or organic condition. In a few cases it may not be possible to determine the cause of this condition, but usually it can be determined with reasonable certainty.

When it has been discovered it will be possible to determine the cause of *that,* for every functional or organic disease has a cause or a number of causes. In almost every case these diseases are preventable, and after they have been allowed to develop they are remediable or relievable, by sane living. To find a permanent relief for headache, it will be necessary to relieve permanently the causative condition or at least to prevent its aggravation.

It may be necessary to make a very radical change in one's mode of living in order to accomplish lasting relief, but one should bear in mind that a condition that has reached the degree sufficient to bring on a headache is approaching the danger point—for the headache is only a red lantern hung by Nature as a warning that worse things may come, and will come if one fails to "slow down."

Health is lost by failure to observe the established laws of Nature; it is regained only by being attentive to these laws. The failure of patients and, to a shameful extent, of the average medical doctor in obtaining relief from abnormal conditions is largely due to ignoring these laws—by attempting to secure or bestow exemption or deliverance from pain,

disease and affliction by vicarious atonement—by some means foreign to Nature that still permits the sufferer to continue to violate laws which no man can change, modify, abolish, or ignore with impunity. It is no man's business, any more than it is his accountability, that these laws exist and that they are immutable; but it *is* his business and his responsibility to himself to determine what they are and to make an attempt to understand them and adapt his life accordingly. To fail to do so is to tempt "fate" and to breed within oneself the various ills to which the flesh is sacrilegiously supposed to be "heir."

In many instances *every* phase of one's life must be altered before there will be relief of the body from the bondage of disease. Almost always changes must be made in several ways to secure this relief. If one prefers suffering to denying himself some of the pleasures of the appetites, then he should bear the consequences with greater tolerance and better grace than is usually the case.

Habits of eating, drinking, working, exercising, resting, sleeping, bathing, mental habits, those of sex—as many of these as necessary must be remodeled so that there will be

that happy medium between the building of energy and its disbursement that permits and signifies healthful activity of every organ and every function. Healthful occupation, of the body and of the mind, is necessary for health of the body, and it is sometimes necessary that occupations be changed. It is impossible, however, to elaborate a system of living that will be suitable for all who have headache and abnormal conditions causing this symptom; a review of the multitude of causative conditions will show the impracticability of the attempt. To determine what is healthful living, especially for the various abnormal conditions that require a regimen adapted to the present state of the body, I can do no better than to refer the reader who cannot find the necessary specific information in this book to some of the numerous physical culture books on these subjects, and urge a closer adherence to Nature, in all ways.

CHAPTER XII

Treatment of Headaches in Children

IN the treatment of headaches in children many factors must be taken into consideration. It is necessary to consider the mental and physical type of the child. Many children are by nature studious and give a great deal of attention to books, either in school work or for general information or for entertainment. They may give little or no attention to their physical bodies, and their parents do not see that they secure sufficient outdoor activity; consequently they become pale and anemic and subject to anemic headaches, fainting easily and are quickly exhausted. They may become so that even the least amount of mental exertion gives them nervous exhaustion or "brain fag."

If the headache comes on they are very apt to give up mental effort entirely for a while, but many of them must be made to do so, for it is these pale and anemic children—with a neurotic base, usually—who are apt to be-

come mentally deficient or at least mediocre, when they possessed promise early in life of becoming mentally superior; they have overdone in early life before the brain was in preparation for the great amount of work it was asked to do, or the brain was improperly nourished because of indoor confinement and the capricious appetite that is usual in children of this type. Or they may escape any immediate effects of a marked nature, to develop in early adulthood neurasthenia and neurotic symptoms of varying degrees of intensity.

Sometimes it is not the child's inclination to devote much time to books and to school work, but over-ambitious parents often demand of them that they keep up with their classes and, perhaps, at the head of classes. A child may be normal in every way but his desires and inclinations may be in other directions than toward books; so, in order even to keep up in his studies he may need to devote most of his out-of-school hours to "cramming." The effects will be the same as with the naturally studious who devote the same amount of time to study, except that there are different inffuences at work in the two to produce the symptoms. The non-studious may not have

the nervous constitution of the other, yet because he is driven to do what he hates to do he suffers practically the same as the one who is constitutionally weaker. However, the studious child will make no effort to take part in physical activities or to stay out of doors, while the other child will take part in games and other activities at every opportunity, and will have to be "dragged" into the house for study.

The child who has an antipathy for books must be allowed to take his own course until he is more naturally drawn to learning rather than be compelled to study, especially if he is physically weak. The delicate studious child must be curbed somewhat in his studies and he should receive gradually increasing doses of outdoor activity. If not, then there may result the neurasthenic and other neurotic symptoms later in life that I have previously mentioned—because the brain can stand only so much concentration and no more, and no child is so constituted as to be able to ignore the general physical body and to devote the greater part of the waking hours to study and mental activity.

Not only must the reading and studying be controlled and balanced well with muscular ac-

tion and relaxation, but other factors must be considered, especially for the naturally studious and physically weak and inactive child. It is very necessary that the diet be such as to give nourishment of a proper sort, preferably as much as possible of the raw foods, and especially sweet fruits and milk. Other fruits, vegetables, eggs, cheese, nuts, occasionally meat, fish and fowl, etc., should be included in the diet, but candies, pastries, sugary foods, gravies, tea and coffee, spices and condiments should be totally excluded from the diet. These children require fats also, and may be given cream and butter in quantities, but guarding against digestive disturbances. Cod liver oil is an excellent addition to the diet of these children.

Sleep is very important, and all children should have from nine to eleven hours of it, and the more one is inclined to mental activities the more sleep should he have. A mid-afternoon nap is of value for most children. The hygiene of these children should be carefully looked after, and they should be trained in oral hygiene (mouth and tooth care), in daily soliciting of the bowels for action, preferably after breakfast, regular or frequent

drinking of water, and the daily bath of cool water and the friction bath should be instituted early.

Usually no special treatment differing from the treatment for adults is necessary for the headaches of children, but the anemic headache of the studious may be relieved by the reclining position and gentle massage to the neck and face and head. Sometimes there is direct irritation to the brain by the congestion created by the constant mental activity, and this may be relieved by cold to the head and hot foot baths; or the general warm bath may be given, with the cold turban. In other cases there will be individual conditions that will indicate other treatment, but they vary so greatly that no idea can be given as to what will develop in any particular child. But remember this: Careful study should be made to discover the mental capacity of each child (and children may differ widely in the same family) and then effort made to keep well within the capacities, erring on the side of deficient training rather than over-training, particularly in those who lean the most prominently toward the precocious.

It might be well here to caution parents in regard to mental work for their children after

severe illness. Memory and retentiveness have been impaired by the illness, and it will be some time before these get back to normal. The physical powers and those of vegetation—especially digestion, assimilation and elimination—will need to be restored to normal or approximately to normal before the brain can be expected to return to its ability to concentrate, to recall former impressions from the storehouse of memory, and to add new impressions with sufficient clearness to be retained. To hasten this process through the mind will lead to disaster, immediately or in years to come, by lowering the mental capacity.

Even the slightest degree of headache resulting from mental processes following an illness should be avoided, but certainly all mental work should be discontinued at the appearance of any headache, and not taken up again until there has been further physical improvement. Not only should the headache be used as a guide in determining the amount of work the child may withstand safely after illness, but petulance and irritability, peevishness and crossness, and restless sleep or wakefulness should be considered in the same light.

Physical recreation is the alternative but it

must not be overdone. There should be ample relaxation, rest and sleep; for not only is mental rest necessary, but mental oblivion or complete withdrawal from consciousness; and this is necessary *often,* after illness. Any work given to a convalescing child, whether it be physical or mental, should be made as interesting as possible, and the subjects should vary in short shifts. But even frequent shifting cannot be continued indefinitely, for it will then produce the same effect upon the mind as will a wide variety of spicy foods taken into the stomach—there will soon be overcrowding, and "mental indigestion."

In the treatment of the headaches from head injury, so often in childhood, there should be complete rest in bed with absolute quiet. The room should be darkened, but abundant fresh air must be supplied. The diet should be nothing unless the child wants fruit juices, which may be given diluted and unsweetened, in practically any quantities desired. If the bowels are constipated a small enema should be given morning and evening of the first two or three days. Cold should be applied to the head to relieve the congestion, and the cold turban with an ice-cap over it is the best ap-

plication, but cold towels may be used, changing frequently. This treatment is beneficial immediately following the injury or for any headache of mental disturbances developing later. Absolutely no mental activity should be allowed after a head injury until the child is normal again, and then *gradual* progress only must be allowed, with no effort to regain lost time.

Anemic cases where there is no marked nervous tendency require a reversal of care from that necessary for the hyperemic cases: an abundance of good wholesome food, more sunlight and exercise, fresh air in living and sleeping rooms, and a more nearly normal life in every way. The headache will respond as the general condition improves.

In the treatment of headaches from heart disease one should not forget that diet has an important place, for the body must be normally nourished without excess, and without food amounts and combinations that produce direct pressure or gas pressure upon the heart. Graduated exercises are of great value except in acute disease of the valves or heart muscle, and cold baths are especially important. For a case not severe, sea bathing and salt baths

may be given with benefit, or plain cool or cold water, the colder the better so long as there is good reaction. Strenuous games and sports are to be avoided, excitement of all kinds proscribed, and there must be plenty of relaxation and sleep. The bowels must not be constipated, because of the tendency to strain at stool, which is very injurious in heart afflictions—also because of the harmful toxemia. Local treatments depend upon whether there is congestion or anemia of the brain.

CHAPTER XIII

Migraine.

(Sick Headache, Hemicrania, Paroxysmal Headache)

MIGRAINE is the most frequent distinct form of headache that we encounter. The combined symptoms are considered by some authorities as a specific disease, since they indicate that other organs or structures than the head alone are involved; but the headache itself is but a symptom, as headache invariably is, regardless of the nature, type or cause.

Symptoms. The usual distressing head pains of this condition appear on one side and, for some reason, on the left side twice as often as the right; and though the pains on the sides may alternate the left side is more often and more severely affected. Both sides may be affected in some cases. The usual location of the pain is in the upper front quarter, involving the forehead, the greatest pain usually occurring just above the eyes. Some-

times there is excruciating pain inside the eyeball, sometimes a terrific throbbing in the temples, and many times the root of the nose is affected also. In extreme cases the pain may reach the base of the skull posteriorly and the back of the neck and the upper jaw, though probably without exception it begins at the forward quarter, and in slight cases may not leave this region. The pain is always deep-seated.

These headaches are usually preceded by symptoms that the victims learn, after a few attacks, to recognize as warning symptoms. Some of these are restlessness, especially at night, irritability, slight but general indisposition, depression, mild digestive disturbances, a tightness or fullness in the head, and a slight dizziness. Then, too, there are pain and sensitiveness to light, a blurring of vision or flashes of light, usually confined to one eye and to one side of that eye. Other peculiar lights are observed sometimes, though peculiarities of vision are not present in all cases. These various phenomena may exist for only a few minutes or an hour or more before the onset of the most prominent symptom of migraine, the headache.

Sometimes the warning symptoms are abnormal sensations such as tingling or numbness, or a feeling as if spider-webs were brushing over the skin, these beginning in the fingers of one hand and ascending to that arm, possibly to the same side of the face.

The headache itself begins as a dull fullness, and a slight pain not at all hard to bear; but the intensity gradually increases until it may reach a stage of "unbearable agony." Some of the more intelligent patients use the terms "boring like a gimlet," or "gnawing," or "a steady tearing," and the head feels as if it were on the verge of bursting open from the pressure within. In some it is mild enough that duties may be continued, but others suffer such torture that they are almost demented. Most patients prefer to lie perfectly motionless, especially so far as the head and eyes are concerned.

The nervous system interprets all stimuli through the special senses as pain. Noise and bright lights produce definite pain, and the skin and scalp are exquisitely sensitive to touch, which greatly aggravates the general symptoms. The temperature remains normal and the heart beat is but slightly affected. The

affected side of the face is congested and hot, the temple arteries pulsating strongly and the pupil is contracted—or sometimes the pupil will be dilated and the face pale; or these opposite conditions may alternate or the face may appear normal, in some cases.

The attacks usually begin in the early morning upon awaking, though sometimes they appear at the other end of the day—sometimes at a certain hour at each attack. The warning symptoms usually begin the previous day. The attacks may last from a few hours to forty-eight hours or longer, with twelve hours as a probable average. The condition of the patient somewhat governs the duration.

Over one half of the patients have nausea and vomiting, which usually occur near the end of the attack, sometimes early. The vomiting may be repeated until the patient is exhausted. Partial temporary paralysis may develop in slight form—in some cases being an aphasia, or an inability to speak, or read, or write or to interpret the spoken, or printed or written word, as the case may be. This condition lasts usually not over an hour or so, and it comes on immediately before the attack.

Sometimes there are slight psychic disturbances, as hallucinations, marked irritability or more or less mental confusion. Sometimes an anxiety based upon no discoverable cause may appear among the early symptoms, in other cases this appears after the attack is well established.

A migraine sufferer will not have all of these various symptoms, and the attacks are not always similar; in fact, usually each attack is different from the preceding one, especially in regard to the various sensations and nervous phenomena. In the majority of cases there is more or less severe headache alone, or along with the headache are nausea and vomiting—the recognized main symptoms of "sick headache."

A deep sleep follows the cessation of pain and there is freedom from pain and the other discomforts when the patient awakens if the attack has terminated; but, as stated, the headache may continue for as long as three or four days. Urination may be excessive after the attack.

Many features of migraine somewhat resemble epilepsy, but it is not believed that these are different degrees of the same condi-

tion, and probably they will never be so considered. The migraine victim may have the consolation that dementia never develops as a result of this disease, but freqeuntly does so after a long-standing epilepsy; also, migraine tends to disappear later in life, while epilepsy tends to increase with age in severity and frequency.

Theory of Migraine. Migraine has been studied for centuries and there is still a large amount of investigation that needs to be done on the subject. Dr. Siegmund Auerback, of Frankfort, Germany, offers a theory that appears to me as being approximately correct. He claims there is a disproportion between the brain and skull capacity, because of some condition that increases the total quantity of brain or fluid substance in the brain, or because the skull becomes thickened at some certain point. There is a normal expanse of the brain at times, but when migraine develops it is in conditions where the expansion exceeds the normal space allotted to the brain. There is a cycle of changes taking place in the functions of the body, in health and in disease, which have their periodic effect upon the brain volume. In the migraine victim there is

usually a peculiar nervous construction, with the cyclic changes more marked and the victim more susceptible to the exciting causes of migraine. These exciting causes may be fatigue poisons, those of nervous spasms, worry, depressing or exciting emotions, mental overwork, intestinal toxemia, internal secretion imbalance, etc.

This theory may help to explain the supposed heredity of migraine, and its tendency to begin in youth and gradually disappear in later life. There are inherited types of skulls, and the same brain divisions and markings seem to "run in families." If there is to be a disproportion between the skull and brain this will most likely be established at the period of development or near the completion of full growth—in youth. Brain expansion is greater in youth because of the greater percent of water. In later life there is at least partial absorption of this water, thus allowing for greater brain expansion; also the blood vessels are less liable to marked dilation and expansion because of more rigid walls.

Since there is a more or less neurotic tendency back of migraine, and since the habits of most people are such as to produce general

and nerve toxemia and disturbances of the blood vessels, and of internal secretions, it is my belief that these account largely for the *inclination* to migraine in those possessing the particular neurotic requirements, which requirements can most assuredly be accounted for by heredity.

Because the two sides of the skull and the two halves of the brain are normally not symmetrical, and since the brain expansion may be one-sided, this may account for the one-sided pains of migraine. The outer manifestations are very probably the result of irritation of the various nerves and nerve centers of the brain, from the direct pressure.

Migraine drugs and remedies cause constriction of the blood vessel walls, with a consequent lessening of cerebral expansion and, naturally, of the pressure of the brain against the skull, thus accounting for the reduction of the pain and other symptoms; but these drugs produce other and undesirable effects and should never be used or should be used rarely and always in great moderation and with caution, and then in selected cases only.

Causes. No other single form of headache occurs with the frequency of migraine. There

is an underlying basic strain of nervousness or a neurotic tendency in practically every case of migraine, though it is not inherited in the true form. Some German investigators have found heredity as a factor in ninety percent of the cases. But since there must always be a first case of any disease, it is possible (and probable) that any given case of migraine is the original one in that family, unless there is history of migraine in past generations. If, therefore, one is subject to this disease he should not consider himself "damaged goods" in any sense or manner, or that his children will be defective or subject to the same distressing attacks, though that does rather frequently occur.

The ratio of women to men subject to this condition is about fifty-five to sixty percent as compared to forty or forty-five percent. Mental workers are more often and more severely attacked than those whose occupations are physical, and especially out of doors, for the mental and sedentary workers have more nervous energy for the "explosions." The disease usually begins between ten and twenty years of age, very rarely after thirty.

The predisposing cause may not be discov-

erable in a single case. But there must be exciting causes, and these can usually be quite clearly determined. It is to these we must bend our efforts to bring relief—and in doing so it is more than likely that the underlying cause may be favorably affected. Nearly all investigators and students of migraine enumerate a certain few exciting causes. And these, because of their almost universal acceptance, we shall consider.

Some of the so-called reflex conditions accepted as very probable causes are menstrual disturbances and diseases of the ovaries, eyestrain, decayed teeth, and disease of the mucous membrane of the nose, throat, pharynx, and ears. But some of these conditions are not diseases, but symptoms of another disease —toxemia. It is quite possible that fairly well marked errors of refraction when uncorrected, and the prolonged use of the eyes under improper conditions will occasion the attacks of migraine after once they have begun; but it is scarcely probable that these conditions ever originate the first attack of migraine.

It is also thought that a marked disturbance of the emotional balance is a frequent originator of attacks, both the first attack and suc-

ceeding ones, or at least that such disturbance may act as a match to set off the condition which was primed by some other cause. Of the emotions, anger is the most likely to cause trouble, for it has a decided effect upon the circulation, the blood pressure, the internal secretion glands and their products, and other organs and functions, and doubtless upon the brain itself. Rage may be so extreme as to poison one completely and produce an absolute prostration; hence it is not to be doubted that it may produce a more or less permanent abnormality, especially if ungoverned and allowed to repeat itself frequently. Grief, anxiety and worry may cause later attacks, but probably not the first attack.

Physical over-exertion is not so frequently a cause as mental over-exertion, but when it extends to the point of exhaustion with insufficient allowance for recuperation and when it is repeated frequently it may have a causative action. The frequent and liberal use of alcohol, and sexual excesses may also be considered as causes.

Neurasthenia is less likely to produce the attacks than hysteria. In fact, the former may be the *result* of the attacks, as nerve function-

ing is certain to be below normal after repeated attacks of such violent headache as migraine sometimes is when continued for years. While it is very probable that when migraine and hysteria appear in the same individual both are the result of the underlying neurotic strain, neither condition being either cause or effect of the other.

Gout and similar conditions are accepted by some and repudiated by others as causes, but whether these are causes or not they are only symptoms of that almost universal disease, autotoxemia. If migraine develops as a result of these conditions it then comes from the same thing from which they came, and not directly from them.

Prognosis. There is a marked tendency for this condition to disappear or at least to reduce greatly in severity without treatment after middle life; especially is this true in women after the change of life, though occasionally there is an aggravation after this period. Some of the associated symptoms usually disappear before the headaches lessen.

While in some rare cases there seems to be a change to a more serious disorder, as apoplexy, paralysis or locomotor ataxia, the prospects of

such unfavorable terminations are fortunately very remote, and these former sufferers frequently reach a normal span of life or beyond, and die of a condition absolutely unassociated with the migraine. And as for some of the more serious conditions which sometimes develop, it is quite generally thought that these are in fact not due to the migraine but to other causes usually active whether the migraine is present or absent. There is nothing definite to lead one to believe that one's physical or mental control is threatened directly by the disease in question, and the disease does not endanger life. The main disadvantage of the attacks is the more or less frequent occurrence and the interference with one's occupation or duties and full enjoyment of life.

Diagnosis. In arriving at a determination as to whether one's headaches are of the true migraine complex or of some other type, it is frequently necessary to determine the period at which the attacks first began. No other headache begins so consistently in the second ten years of life, and especially at or near the period of adolescence. Typical cases are quite easily recognized, for no other condition has

the peculiar type of headache, the vomiting, the frequent preliminary aura, visual phenomena and other peculiar manifestations. But a typical case may require considerable observation and various examinations in order to arrive, by elimination or exclusion, at a proper diagnosis.

Treatment. Whether or not there is a special susceptibility to this disease cannot be determined before its development (except where it or a marked neurotic condition is present in both parents or in families of both parents). Hence the treatment or particular mode of life that should be followed for prevention is never employed as a preventive. While there is no certainty that a doubling by marriage of a tendency to neurosis will result in migraine or in any other nervous disorder, the tendencies in this direction will be so marked that such marriages should be avoided, or precautions should be taken to preserve the highest possible degree of health of the prospective parents and later of any children that may result from the union.

There can be no way of determining this, but I feel quite certain that if the habits of life that are best for the preservation of the

highest degree of health were followed there would not be many cases of migraine as we now have them—and the same holds true for other diseases and disorders as well.

People must necessarily live somewhat differently. It is, therefore, impossible to give in detail how any one should live in order to avoid the first attack of migraine, if such predisposition is apparent. But in any case there should be an avoidance of strong emotions, and exciting factors in the home, at school, at play or elsewhere; there should be sufficient physical and mental relaxation and recreation and no over-exertion, and yet there should be normal, wholesome physical activity. All laws of hygiene should be observed, equally in regard to environment and internal and external personal hygiene; also all laws of sex hygiene should be understood and observed. The diet must be ample but not in excess and it must provide all the elements for nutrition, particularly the mineral elements and vitamins that are responsible for normal chemistry of the blood, body fluids and tissues, and for normal growth and responsiveness of the nervous system; and at the same time it must be free from the food combinations and accessories

that are irritant in any manner. Alcohol must be avoided, but also, of equal or perhaps greater importance, the alcoholic poisoning that results from the too liberal use of sugar and unnatural sweets must be prevented. An out-of-door life is an important part of the preventive treatment. The care of the basically neurotic child should receive the consideration I have urged in the chapter on the treatment of children's headaches. Such normal life will do much toward thwarting any adverse hereditary tendencies, but in many individual cases of prospective (?) migraine victims an even more rigid regimen should be laid down.

Another important factor for parents, guardians and caretakers of children to observe is to avoid unnecessary and harsh discipline. Nagging, criticism and correction of a sensitive child who is potentially a neurotic and a migraine subject, without definite reason for such discipline, is almost certain to undo most of an otherwise highly favorable preventive regimen. Children should be gently guided and led rather than driven, for the latter mode of control is very liable to give rise to repressions and suppressions, besides causing immediate anger and rage or humiliation,

which will probably prove disastrous. There should be given every opportunity for children and young people to satisfy their inquisitive natures and their need for action by such means as will leave them for the most part to their own amusement.

As for employment, cities should be avoided when possible, and positions necessitating a large part of the time out-of-doors should be chosen. Mental fatigue will usually be avoided by outdoor employment, while physical fatigue may result from some indoor positions. Not only this, but the considerable benefit to be derived from the fresh air and sunlight should be sought.

In case the attacks have already developed, then the treatment must be designed to bring about such a change in the body as to stop them entirely if possible, or at least to reduce their frequency and severity. Among the exciting and harmful influences that must be avoided as much as possible are dietetic errors giving rise to constipation and toxemia and a reduction or abnormal stimulation of liver activity; the use of alcohol, richly spiced foods, stimulants and drugs, especially pain-relieving drugs; loss of sleep, worry, mental or physical

overwork, and nervous or vital exhaustion from any cause, including sexual excesses or unnatural practices, exciting and exacting social activities, competitive sports, trying occupations, and confinement within doors.

A child or other person should be directed and induced to lead as normal a life as possible (but not based upon the *average* life of today!), with eccentric habits prevented or trained out. Humiliation, embarrassment and confusion should be prevented. The spoiled child is almost always inclined to suffer nervous disturbances comparatively early in life, and migraine may be the form it takes. Therefore there should be no coddling, pampering and humoring of a child, especially the nervous or neurotic child.

The potential migraine victim and the migraine victim are very likely to choose a one-sided diet, whether this be mostly meat, or largely pastries, or sweets, or bread and butter, etc. Only nourishing foods should be allowed, and a "finicky" appetite should not be catered to—though one should not be forced to eat. Rather than too much meat an exclusive vegetarian diet for several days or even for weeks or months at a time will be valuable, and

the lacto-vegetarian or lacto-fruitarian diet will be highly serviceable as a preventive of the peculiar chemical conditions that make the first attack possible, and future attacks as well. Especially to be recommended is a salt-free diet—no salt to be allowed in or on any of the foods used. The absolute fast or the fruit fast may be considered in many cases.

A change of environment may sometimes prove beneficial. A trip at sea or a sojourn in the mountains or country may be considered for many cases; but the excitement of the city will tend to aggravate the attacks or the tendency to them if one is a native of the rural districts and unaccustomed to city life. "Small town life" may, however, be helpful for a time for certain rural folk.

What is desirable is a mode of life and a condition of environment that will tend to lessen or remove the tendency to introspection, brooding, morbid self-concentration, and neurasthenia and excitement, stimulation or irritation. These factors will be helpful in any case, the degree of benefit depending upon the degree of stability; but they will not be certain, of course, to correct the hereditary or constitutional basis for the migraine. Since

one may for a number of years be on the borderland, with migraine awaiting some particular reduction of vitality or nerve force or an increase in toxemia, one will need to observe a rational, preventive regimen until the physical and nervous stamina and stability are assured, and the same measures will bring about general improvement after migraine develops.

No drug has been made or will be made that will remove the disease or its constitutional base. Drugs are given merely to lessen the attacks and their frequency, but they often have some effects in these directions at the expense of the general or nervous health of the patient. The reason may be absolutely destroyed by bromides—the most frequently given drugs—and who can tell which patient has such a susceptibility! Without hesitancy and without qualification I strongly condemn such treatment in any and all cases.

During Attacks. According to medical belief and practice there is nothing that will give any relief whatever at this time except drugs. But bromides are usually shelved at this time for the more active pain-killing drugs, such as various coal-tar preparations—phenacetin,

aspirin, migrainin, pyramidon, and antipyrin. Many physicians consider any one brutal and inhuman who keeps morphine from a violently suffering migraine victim. But except in very rare instances comparative comfort can be secured by safer means, and without the danger of morphine poisoning or of the patient becoming an adict to the drug.

At the very first onset of any of the warning symptoms the sufferer should be placed promptly upon the absolute fast, and the longer this is continued the better, if care is observed to keep well within the strength and vitality of the patient. But such a patient tolerates the fast remarkably well, though there may be and frequently is a period of vomiting, which may last for a day or for two or three days, at irregular intervals. But the body is cleansed by the fast, and vomiting, and headache and other symptoms are prevented or at least greatly reduced in severity. The vomiting gives the body a more thorough cleansing than it has had for a long time—being much the same in effect as that which occurs on an ocean voyage by the "poor sailor." Several quarts of hot water may be taken internally with relief, this sometimes being sur-

prisingly effective. A little lemon juice added to the water sometimes increases the good effects of the water. At least a quart of hot water should be taken within the shortest time possible within reason.

At the onset there should also be given a thoroughly effective enema, with as much as three or four quarts of medium warm water, if possible. This may be given twice daily, but at least once daily. And this is one condition where a mild saline laxative is permissible. Any preferred saline laxative may be given in sufficient dosage to produce prompt and copious results. But this should not be repeated; instead, the enema may then be given daily after the second or third day.

After the fast fruit juices may be given, such as lemon, orange or grapefruit juice. These should be strained and, preferably, diluted—but unsweetened. This diet may be continued for several days, depending upon its effect as a "bracer." Later fresh and stewed fruits and milk may be taken, but preferably one of the sour milks, as buttermilk or clabbered milk or any of the cultured milks. If fresh milk is taken it should be at least partly skimmed. Still later cottage cheese may be

added to the meals, and then raw and cooked green vegetables, in any amounts desired; in fact, large quantities of these vegetables are to be advised, because of their highly beneficial effects upon the blood and liver. A little genuine whole wheat bread may be added by the time the vegetables are supplied, if it is taken thoroughly toasted or well dried. Fats, gravies, rich foods, spices, condiments, sugars, tea, coffee, and soda drinks are not to be included in the diet, and alcohol must be prohibited.

An important part of the treatment at the outset of the symptoms is complete rest and relaxation. After the enema or laxative has been given the subject should rest in a darkened room, preferably with the head slightly lower than the body. It is advisable to have cold wet cloths or the cold turban about the head, or at least the forehead. The eyes and neck should be covered. An ice-bag may be employed, but only over a wet cloth. If there is a preference for heat this may be used instead of cold—by hot cloths, an electric pad, a hot-water bottle or an ice-bag filled with hot water. In many instances a plain dry bandage about the head appeals most to the patient,

but as either the cold or the heat has a definite soothing effect it should be used, as the bandage can be as tightly applied when moist as when dry if the constriction is also desired.

It is well to observe consciously that relaxation is being accomplished. Many will lie prone and still there will be marked tension in many of the muscles of the body. Deep slow and rhythmic breathing will materially help one to relax, as will keeping the eyes closed—but only slightly, not forcibly. One may consciously relax the body effectively as follows: Think of the neck; it may be found that unconsciously the head has been held on the shoulders instead of allowing the pillow to hold it. Relax! Now travel in thought to the right arm, and relax this, going down to the fingers. Then relax the left arm, then the legs, and finally the trunk of the body. By this time the neck may be all tense again. It may be necessary to go all over the body in this manner two or three times. Breathe deeply without strain, during the time of relaxing. After the muscles have become relaxed one should then "go inside the head" and endeavor to relax it by allowing the brain to "droop," as it were, while endeavoring to intensify the sen-

sation of "blackness" so far as possible. This will usually give some measure of relief from headache (of any type), and the compresses mentioned and other treatments to be suggested will assist in the process of cure—both of the attack and of the tendency.

A gentle massage of the muscles of the back of the neck will be found soothing and restful and to some extent relaxing. The manipulation should begin at the base of the skull or at the back of the head and gradually extend down the neck and then out to the shoulders and a few inches down the spine. It is better that a member of the family or other attendant give this massage. It is helpful also to give gentle traction upon the head, pulling it straight up from the shoulders. Gentle massage over the eyes, temples and forehead will be highly gratifying to the patient. The massage to any part will be more helpful if it follows or is followed by hot compresses, though in some cases cold after the massage will be more pleasing. A full-length hot spinal pack often greatly alleviates the pain and sometimes relieves it altogether after other methods have failed. Other effective water treatments, in different cases, are the alternate

hot and cold spinal compresses, hot foot baths, hot packs to the legs, long hot and short cold applications to the head, these latter alternated several times; sweat baths, by full-length tub baths or electric cabinet, steam cabinet, or wet-sheet or blanket pack, are helpful, both during and between attacks.

Massage of the abdomen is also of value. Very gentle but deep, fairly constant pressure may be beneficial through its quieting effect upon the solar plexus and, through this, upon the entire nervous system. The lower ribs of the right side may be gently vibrated by the lightly closed fists or the edge of the hands if a more satisfactory method is not understood by the attendant; and massage directly beneath these ribs may have a stimulating effect upon the liver and may tend to dissipate any congestion that is likely to be located in this organ. A hot pack over this region will also have a good effect, and may be used before the massage and vibration are given.

Though the patient should be relaxed and in at least semi-darkness, there should be an abundance of fresh air admitted to the room. This cannot be emphasized too strongly, as an adequate supply of oxygen is necessary to pur-

ify the blood as rapidly as possible—an important part of the treatment. This is one reason why deep breathing is so beneficial, but it will fail to accomplish any good results unless each breath draws into the lungs a good supply of fresh air, laden with oxygen. Between attacks the migraine victim should live an out-of-door life as much as possible.

The treatment given here may not always entirely remove the tendency to migraine, but in many cases it will. If religiously followed it will give relief in every attack, and the paroxysms will be reduced in frequency and in tendency toward severity. To a considerable extent this same treatment will be helpful in other headaches, but the long fast must be avoided in anemia, and neck massage is frequently aggravating to hyperemic headaches.

Whatever the cause of migraine and whatever the predisposing factor, I believe that all investigations and experiments will prove valueless unless a more rational therapy is considered than drugs, puncture of the spinal canal and the ventricles of the brain, or the removal of certain portions of the bones of the cranium for the relief of pressure. Whatever in time may be determined as the cause of this

or any other abnormal condition, little permanent relief will come to the victim unless treatment is directed toward the real basis of the trouble, which is largely the abnormal modes of life—in their physical, sexual, mental, and moral aspects.

CHAPTER XIV

Brief Regimen in Case of Headache

AFTER having read this volume one cannot have failed to recognize the fact that headache indicates an abnormal condition of the body that may lead to serious consequences if left uncorrected; also that in attempting to relieve the headache an effort must be made to correct the underlying cause, if the headache is to be most quickly and permanently relieved. Therefore for your convenience in making proper application of the measures recommended in the chapters on treatment I shall here briefly outline them in order that any confusion of ideas may be clarified.

Cause. Make an effort to determine the cause and work directly toward correcting that.

Rest. Whether or not it is absolutely necessary on account of pain in the head, one should take as complete rest as possible except perhaps in the headaches that develop from mental over-exertion, from the omission

of coffee and other stimulants when these have been regularily used, and from constipation. Sexual rest is important in most headaches. In those due to prostate enlargement and irritation, walking and other light exercises, especially for the lower extremities, will be helpful.

Diet. In most cases all food should be withheld from the headache victim during an attack, because whether or not the headache is directly the result of toxemia there is usually a considerable element of this. Moreover, during the pain the digestive juices are reduced in amount and effectiveness, and the motor activity of the stomach and intestines is lessened. Hence food can only serve to aggravate further the condition by adding to the toxemia or by producing toxemia when too little existed before to cause trouble.

The absolute fast or the fruit juice diet should be taken for a few days, or food should be omitted for a period of from one to four meals. After this use a diet of fruits and vegetables mainly, eating two or three meals a day, avoiding stimulating foods and rich and spiced foods. In case of anemia the full milk diet is excellent, but considerable milk

may be taken in an otherwise natural diet.

Internal Cleansing. The enema should be used at the first approach of a headache, to cleanse the lower bowel and to help remove the toxic factor from among the causes. A quart or so of warm water is sufficient in most cases, though this may be repeated. If very toxic from constipation and other defective activities of the digestive tract, the high colonic irrigation should be employed. This or the enema should be used daily while on a fast, and as often as necessary when on any other diet. Rectal irrigation may be used in place of either of these, especially in headaches due to pelvic inflammations and irritations.

Water Treatments. The best direct treatment for most headaches is the use of the cold turban with cold to the neck and hot porous cloths over the face—except that the anemic headaches should have heat to the neck or head or both. A cold or hot wet band about the forehead and head may be sufficient in some cases. Alternate heat and cold may be applied to the head. The hot foot bath with or without the cold to the head may alone bring relief in many mild cases. If there is abdominal irritation an abdominal girdle may be used.

Tub baths are best in fever and rheumatism, gout or kidney disease, though heat and massage are necessary in rheumatic or nodular headache. Cold should be about the head during the tub baths. For the various conditions causing headache see the section on Hydrotherapy, in Chapter XIII.

Massage. Especially in nodular or rheumatic headache massage is important, but must follow hot applications on the painful nodules. In anemic headaches massage to the head and neck will be beneficial, also general body massage. In congestive headaches it is best to massage the lower extremities and abdomen only. General massage and especially spinal massage will soothe the headache of neurasthenia. Local face massage in case of hay fever headache will hasten relief. In other cases local or general massage should be considered.

Spinal Manipulation. Bringing the head backward or upward in direct line with the spine should be used for congestive headaches, and bringing the chin forward and downward to the chest for anemic headaches. Alternate pressure upon the sides of the head and upon the forehead and back of the head may be used

for any headache except anemic and organic. Special naprapathic, osteopathic or chiropractic treatments may be used in practically all cases of headache.

Electricity. When easily available, special electrical treatments may be taken, though the other methods will probably have given relief before such treatments can be taken. The portable home "violet ray" outfits may be used to apply electricity to the head, face and neck in case of neuralgic headache, possibly for neurasthenic and mental exhaustion headaches, and down the spine for physical exhaustion headaches.

Suggestion. Banish thoughts of headache and all other pain, either by banishing *all* thought or by occupying the mind with some subject that takes the interest away from the pain without requiring mental concentration. While thoughts of other subjects may not completely remove headache they not infrequently do so; but certain it is that harboring thoughts of the headache will intensify the ache.

With the aid of this book one should be able to find a treatment that will give fairly prompt relief from headache, and a regimen that will

do much toward removing the cause. If the book is thus instrumental in freeing its readers of the pains that disturb the very process of life and thinking, and in reducing the amount of time lost from work and wholesome pleasure on account of these pains and their effects, the object of its author will have been accomplished.

[THE END]